news • developments • research • significant articles • statistics • personalities • features

The·Northwestern·Miller

MILLING PRODUCTION SECTION

IN TWO SECTIONS—SECTION TWO

SEPTEMBER 13, 1944

Factors That Determine Wheat Protein 3a

Vocational Education in England 5a

Eliminating Dust Explosion Hazards 6a

Safety in Handling Belt Shippers 11a

Chemistry for Operative Millers 12a

Milling of Rolled Oats 14a

Sassafras Bread 18a

Cleaning Wheat for Milling 20a

Volume 219 • Number 11

Willis N. Kelly, Vice President, William Kelly Milling Co.

A Civic Minded Miller

By Herbert Waggoner

WILLIS N. KELLY was born in the shadow of his father's mill at Great Bend and nothing could be more natural than that he fulfill one half the ambition of the late William Kelly—that his two sons carry on the substantial business he established. It was the elder Mr. Kelly's wish that one son become a miller and the other an executive. Willis Kelly took to the operative end from the start, while C. C. Kelly, his brother, leaned to the executive department. So today finds C. C. Kelly as president and manager, while Willis Kelly, slowing his activities under orders of his physicians, continues to maintain watch over the two big plants in Hutchinson, Kansas.

The late William Kelly, a real pioneer in milling, who served as an apprentice when a young boy in the Albers Brothers mill at Warsaw, Ill., was happy in his last days to find his two sons carrying on as he had desired, each contented in his particular niche.

It was before the turn of the century that William Kelly came to Hutchinson from Great Bend and, in partnership with W. E. Carr, built the Monarch mill, which was destroyed by fire approximately 20 years ago. Subsequently this property was sold to N. B. Sawyer and in 1906 the senior Kelly built the first unit of the present 5,000-sack establishment. The capacity of Unit A was doubled in 1916 and wheat storage added. In 1920 Mill B, in the east edge of Hutchinson, one of the 1917 "war babies," was purchased by the Kelly company.

Willis Kelly played about his father's mills as a small boy and as soon as he was old enough began working about the mill during summer vacations. He was interested in the processing of wheat and learned much as he "did the heavy" three months each summer. When he entered Kansas State College in Manhattan it was to take a course in cereal chemistry and from this he was graduated (*Continued on page 4a*)

for milling production problems

This ripening boll of fine American cotton may seem a far cry from production problems in your mill. But actually, just such superior cotton as this, manufactured into top-quality cotton bags by Percy Kent, has sped up production in mills all over the land since 1885.

Cotton bags, because of their unequaled flexibility, are *easier to handle . . . faster to pack, stack, load and unload.* And because of their great strength, cotton bags stand up under roughest shipping conditions.

These facts, coupled with the varied reuse features, make cotton bags the accepted preference of milling production men, dealers and housewives in every locality.

SPECIALISTS IN COTTON BAGS SINCE 1885

PERCY KENT BAG COMPANY, INC.

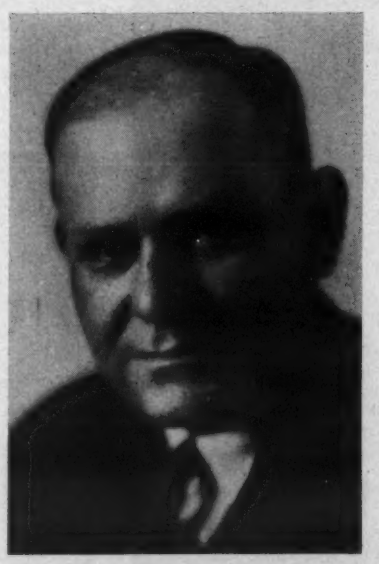
KANSAS CITY • BUFFALO • NEW YORK • WICHITA • MINNEAPOLIS • SAN FRANCISCO • CHICAGO • OKLAHOMA CITY

By Dr. M. A. McCall

Head Agronomist, Division of Cereal Crops and Diseases, Bureau of Plant Industry, U. S. Department of Agriculture

THE fact that the 1944 wheat crop in the hard red winter wheat area is below the average in accepted protein content naturally arouses a considerable interest in the reasons for such variation. Bakers are concerned in having flour that conforms as nearly as possible to what they have found needed to produce a satisfactorily uniform product and to maintain bakeshop procedures on as nearly a uniform basis as possible. Millers are concerned in a wheat supply which in turn will permit them to produce this flour with the least difficulty and expense. Both mill and bakeshop procedures can be adjusted to obtain a satisfactory product from somewhat varying supplies, but wide variations from the general average make for trade difficulties and added expense and inconvenience. A general survey of the reasons for variation and a consideration of some of the factors that can be taken into account in forecasting crop variations due to season and other factors should be of some use to the trade. The problem of wheat quality is of course a complex one, yet the primary controlling factors can be reduced to terms making possible a quick evaluation of what probably may be expected in any one year.

Gluten content, roughly protein content, is the primary factor concerned in year to year quality variations in the wheat from a given region so long as varieties remain pretty much the same or are essentially the same in protein content. Proteins are the principal nitrogen-containing compounds of the wheat kernel and consequently of the flour. Protein content is the result of the nitrogen nutrition of the wheat plant during growth and the development and maturation of the wheat kernel.



Dr. M. A. McCall

It is well known to everyone at all familiar with the problem that in general all of the wheat from one type area may differ in protein content and consequent strength from all of the wheat from another type area. This even may be true for districts within given areas. The differences between the hard red winter wheats of the south central plains and the soft red winter wheats of the eastern part of the country, and the differences between the white wheats of the Palouse and those of the Big Bend districts in Washington state illustrate the two situations. In part these differences are due to the varieties of wheat grown in the different regions or localities, but they are due primarily to differences in the environments which affect the nitrogen nutrition of the wheat plant during the period of grain development and maturation.

Relationship Between Climate and Wheat Type

HARD red winter wheats, for example, when grown in the eastern United States, while higher in protein content and harder in texture than the soft winter varieties, are much softer and lower in protein content than when grown in the typical hard red winter states. Typical hard wheats adapted to the plains area are not adapted in the East, so that yields of these varieties in the latter region are relatively low, which in turn results in comparatively higher proteins than otherwise. Adapted hard winters like Purkof, which give yields comparable to the typical soft winters in the soft winter area, are comparable to the soft winters in protein content, although they may still carry some of the flour granulation and other characters of the hard wheats. By and large, seasonal differences between the wheat crops of a given area or locality are due to the same kind of circumstances which account for the differences existing on the average between areas such as the hard red winter and the soft red winter wheat belts.

PROTEIN DEPENDENT UPON NITROGEN

Davidson and Le Clerc of the United States Department of Agriculture, confirmed by work at the California, Idaho, Oregon, Washington and other agricultural experiment stations, showed very definitely that the protein content of the grain crop is determined by the nitrogen available to the wheat plant during the period in which the grain is developing and maturing. Nitrogen utilized by the plant before heading and blossoming is reflected in total yield. Early work, mostly in Europe, had given the idea that the wheat plant takes up its nitrogen supply early in its growth, and that all its subsequent development was dependent on this supply. This was a natural assumption since the work was done under conditions where nitrogen was a limiting factor in production, and where fertilizers added at the beginning of the growing period were quickly taken up by the crop with resultant increase in growth and yield, but, since the nitrogen was utilized in growth, with no material change in grain quality. We now know that the wheat plant continues to take available nitrogen from the soil so long as the plant is actively functioning, and that nitrogen taken up after vegetative requirements are met is deposited in the grain. Any factor of soil, general climate, or season, which limits the amount of nitrogen available during the grain formation and maturation period reduces the protein content of the grain.

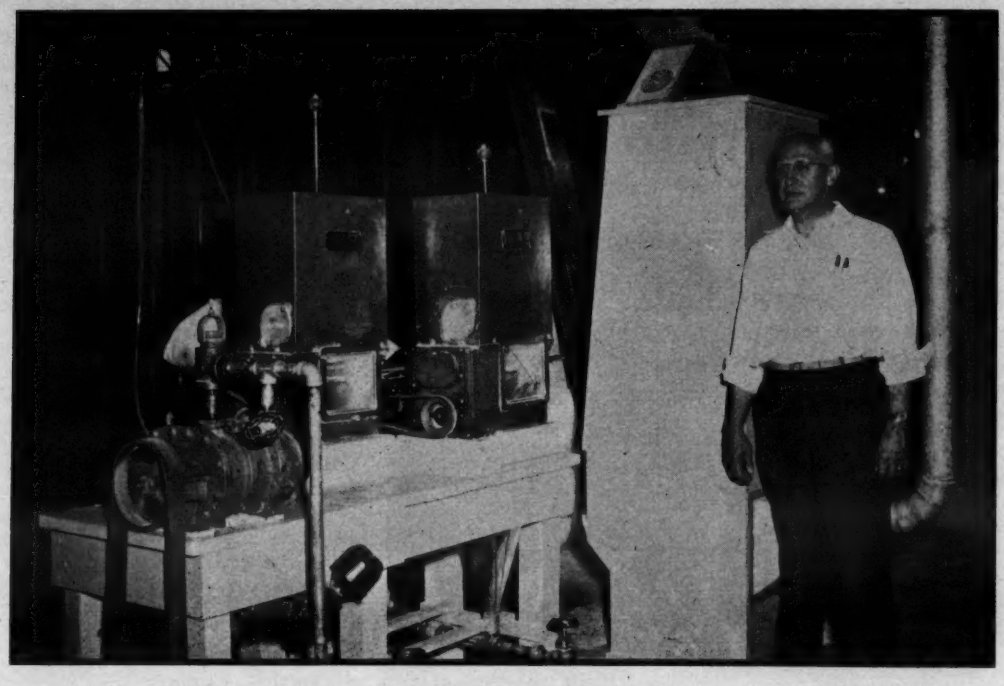
Soil Nitrogen One Important Factor

AREAS of the United States which normally produce our high protein, best quality bread wheats are characteristically high in soil nitrogen. The belts of dark and chestnut soils which extend from Canada down through the Great Plains into Texas have a nitrogen content in the first 40 inches from one and one half to two or more times the nitrogen content of the soils in the soft winter wheat growing areas of the eastern part of the country, and an even larger proportion than most of the dry farmed and irrigated soils in the intermountain West. Climatic conditions are also more favorable for insuring that nitrogen supplies during the period of grain development are adequate to produce higher protein wheat. The normal rainfall of this area, coming in large part during the late spring and summer, insures that moisture conditions are favorable for soil processes which make the nitrogen available to the plants in amounts sufficient to carry over into the grain forming stage of development. The higher nitrogen content of the soil adds to the certainty of such an available supply. Likewise the rainfall is seldom great enough under most circumstances to result in leaching available nitrates out of the soil levels from which the wheat plants draw their nutrients. In the eastern United States on the other hand, while weather conditions are favorable for nitrification in the soil, the low content of soil nitrogen results in less total available nitrogen. This is used in much larger part for vegetative growth with a correspondingly smaller proportion of the smaller total supply left for laying down protein in the grain. Leaching of nitrates from the soil is also more likely to occur. The net result is less nitrogen during maturation and wheat of lower protein content.

SOFT WINTER WHEAT PROBLEM

The quality problem in the soft red nitrogen, is an actual threat to the promany ways than the foregoing might imply. The principal users of soft wheats are more concerned with what determines less protein rather than more. Farmers are concerned with building up

(Continued on page 7a.)



The old type purifiers in the William Kelly Milling Co. plants have been replaced by an apparatus called a "pura-box" by its inventors, Willis N. Kelly and his mill superintendent, Joe Steele. The device has been in use for the past year.

Civic-Minded Miller

(Continued from page 1a.)

in 1912. From college Mr. Kelly stepped directly into an apprenticeship in the mill, serving between two and three years under the late W. H. Light. He recognized the relationship between operations and chemistry and went to Chicago for a special course in cereal chemistry.

"I got a lot from that course," commented Mr. Kelly. "The time I had spent in the mill gave me a keener appreciation of the value of my studies."

When Mr. Kelly returned it was to take charge of an uptown laboratory maintained by the local mills. Then an independent laboratory was opened in Hutchinson and Mr. Kelly moved his equipment to the mill, continuing for a time to head that department. Nearly a quarter century ago Mr. Light retired and Mr. Kelly took over as superintendent.

"I really had the operations department in mind all the time," he said. "The chemical end was part of the training which enabled me better to direct the milling of wheat."

Seven years ago Joe Steele, an ambitious young man, entered this family of millers, marrying the only daughter of C. C. Kelly. He began work as an apprentice in the mill and has now taken over most of the duties formerly handled by W. N. Kelly. His proficiency is shown by his development of what is known as a pura box, which replaced the old purifiers. He and Mr. Kelly collaborated in this improvement.

W. N. Kelly is not a politician but holds every man should stand ready to serve a reasonable time if he can bring about better government. That is why he heeded the demand of friends five years ago and became candidate for mayor, to win two terms easily. He retired in 1948 and says he has done his bit in the field of public office; would not consider seeking or accepting any public office beyond the one he has held for several years, as a member of the Kansas Board of Regents. Mr. Kelly has never lost interest in his alma mater and is an avid football follower. He served a two-year unexpired term as a regent and was appointed last January to a full three-year term. He is keenly interested in the state's education system, though admitting he finds it difficult to be impartial when his old school plays the state university on the gridiron.

One other semi-public interest took a great deal of the miller's time for six years, Boy Scouting. He was president or a member of the Southwest Kansas Boy Scout council for that period. It was while his two sons William and Charles were active Boy Scouts. That interest in his two boys has been heightened as they answered the service call in the present war. William, a lieutenant in the Quartermaster Corps, is in charge of a bakery in New Guinea and Charles is a fledgling pilot of a pursuit plane somewhere in the European war zone.

Willis Kelly entertains, as did his own father, the hope that his two sons will become associated with him in the milling business. It is definite that William Kelly will enter the business. He completed the milling course at Kansas State and would have had his Master's Degree at Harvard but for the war. Entering the army changed his course but he graduated from Harvard with a degree in industrial administration before going into active training. Charles Kelly had completed only one semester in chemical engineering when war interrupted his schooling and sent him into the air corps.

That Willis Kelly believes in self-expression for his sons is shown by the fact that the three of them almost constituted a Pan-Hellenic society, neither of the boys choosing his father's fraternity at college. While W. N. Kelly is a Sigma Nu, William is a member of Beta Theta Pi, and Charles was a Phi Delta Theta member.

Willis Kelly gave his boys the finest recreation room in Hutchinson when he built a large new home several years ago. Then when they went away to war and he was advised to slow down, he sold the large place and bought a small home, ample for him and Mrs. Kelly.

His physician's orders also have eliminated the favorite sports of Mr. Kelly. He has abandoned golf and bowling, at which he found much pleasure without ever becoming expert.

Mr. Kelly thinks the greatest advancement in milling in the nearly half century he has been around flour making is in methods of purification of middlings. He perfected one device for the purifier which has served well and which was adopted by the Nordyke-Marmon company.

Shifting to the combining has brought more problems to processors than any other one step, he believes. From the operations standpoint he says headed wheat is far more desirable than that spewed from a combine.

One thing which seemed to develop as combining became almost universal and which he has never been able to solve is the appearance of an oily substance which glazes the bolting silk so badly it must be discarded long before it is ready otherwise, for the rag bag.

Willis N. Kelly is shown above with the experimental model of the pura-box purifier built by Joe Steele, superintendent of the William Kelly Milling Co.

Willis N. Kelly poses here beneath the pictures of his sons, pictured first as Eagle Boy Scouts and below as lieutenants in the Army of the United States. Charles (left) was a member of the Air Corps until his recent death in Italy and William (right) is in the Quartermaster Corps.

EDITOR'S NOTE.—This article was written and in type before the news came to Mr. Kelly that Charles had been killed in mid-August, a few days after his arrival in Italy.

Technical Education for British Millers

★ ★ ★ ★ ★ ★ ★ ★

Pleased With the Success of Vocational Training, They Plan to Expand Their Course After the War

TECHNICAL education in the flour milling industry of Great Britain has been tried and has been proved to be successful for the past 25 years. Plans are now being made by The National Joint Industrial Council of Great Britain for arranging refresher courses for flour mill workers and students whose studies were interrupted by the war and for the recruitment and technical training of new entrants to the industry.

The Joint Industrial Council—composed of representatives of managament and labor—has had supervision of technical education activities since 1924. A review of the program and announcement of plans for the future are contained in a recent issue of *Milling*, a British business journal. The report, written by David C. Lister, one of the members of the council, states in part:

"The National Joint Industrial Council was formed in 1919, but it was not until 1924 that the Council elected a technical education committee to take over the duties of facilitating and encouraging technical education in the flour milling industry.

"This step was taken at the request of the National Association of British and Irish Millers which, prior to that date, had carried out the ancillary work of technical education through one of its committees. That committee nominated examiners, presented prizes, and acted in an advisory and consultative capacity. The local education authority provided teachers and accommodation for classes, while the City and Guilds of London undertook the arrangements for examinations, and both sets of activity were under supervision of the Board of Education.

"At their meeting on July 3, 1924, the National Joint Industrial Council, feeling that the major work of the Council was then in satisfactory shape, decided to elect a technical education committee, consisting of three representatives from each side of the Council with powers to invite representatives from the teachers, the education committee of the National Association of British and Irish Millers, the City and Guilds of London Institute and the Board of Education.

"This Committee strongly recommended the setting up of local committees to stimulate interest in the technical classes and energetic committees were soon functioning in all milling centers. Meetings were held at individual mills to encourage operative millers to join the classes, specialist lectures were arranged, and the annual distribution of prizes was made quite a notable event, with civic heads present in many instances.

"The result was that classes which had about 20 or so students on the roll increased to 100 or more in many milling centers. The National Committee next tackled the question of a revision of the course of study and decided to supersede the old grade I and final examination. Under that system a student, after passing the final examination in flour milling technology, had to pass in the lower examination of the Board of Education in two of the science subjects before getting the full technological certificate.

"The new four-year course embraced science as well as flour milling technology, thus bringing the whole course under the Joint Industrial Council's Scheme for Technical Education.

"By 1938, counting class and correspondence students, the course had a total registration of 917 students. Some of those students have been placed in good jobs in the industry and all have increased their knowledge and interest in their work and as a consequence have become better citizens.

"Reference was made above to correspondence students, and this is the appropriate place at which to refer to the establishment of the correspondence course, which seeks to bring the benefits of a technical education to those students in isolated and country mills who have not the facilities for enabling them to get to a center of instruction.

"Reference should also be made to the enterprise shown by the Liverpool technical education committee in establishing a demonstration room at the Liverpool Technical College where there are actual working mill machines which the students can handle and study.

"This collection of working machines has been from time to time augmented by new exhibits, and the experiment is one which it is hoped will be developed in other centers after the war.

"The outbreak of the war necessitated the calling up of young men from the industry and practically closed down the classes, thus interrupting the training of the students and setting postwar problems which the committee is already considering."

An Education Bill "which seems certain of passage" by the British Parliament makes it statutory that local education authorities provide educational facilities for adults both for vocational and recreational purposes.

"This war has shown the poverty of technical training facilities in the country generally," Mr. F. Bray states in a companion article to that written by Mr. Lister in *Milling*. "The decision under the Education Bill to make it compulsory for education authorities to provide means for assisting industry in the vital task of training its employees and also for the people to enjoy their leisure profitably is an indication of the importance which the Government attaches to vocational and adult education generally."

There is also a growing consciousness on the part of industry in Great Britain of the urgent need for improved training facilities, Mr. Bray observes. He also states:

"This is shown by the numerous reports on training problems which have been published recently, by the great increase in the daytime release of apprentices at a time when there is every reason for keeping them on production work, and by the postwar planning which is now taking place throughout the industrial and professional world.

"What effects will the new Bill have on industry generally? Some effects are self-evident, such as the improved education of the recruits to industry and the possibilities of better facilities for technical education.

"Other effects are not so obvious, such as the tendency for youth in the future to select occupations which offer reasonable opportunities for training and promotion. . . . In the past the ambitious youth was compelled to attend evening classes if he wished to become a fully trained technician. If he had the determination to continue this exacting method of progress and the physical fitness to survive years of day and night labors, he was usually successful. He deserved his success, although this form of training deprived him of a large part of his leisure and did not always succeed in developing his personality to the full. The youth of the future will try to satisfy his vocational needs largely in the daytime and therefore will probably use discrimination in his choice of a career. He will be influenced in his choice of a career by the increased demand for his services which will be a likely result of the reduced birth rate.

"Plans are now being made to carry on full time short courses for young wage earners who cannot attend one day each week or for whom adequate technical educational facilities are unlikely to be available in their home towns.

"In the flour milling industry there has been in the past great keenness for technical education on traditional evening school lines. Difficulties have arisen in some areas from lack of educational facilities, owing to the scattered nature of many of the flour mills in centers remote from technical colleges. Complaints have been common of the low standard of general education of the recruit on entry into the industry. A partial solution of the first difficulty was effected by the establishment of a correspondence course which operated through the good offices of the Editor of *Milling*, while preliminary courses of general education have been introduced to cope with the second difficulty. When the new educational regime is in full swing, we ought not to experience serious deficiencies of general education in the average young employee, but we shall continue to find it difficult in some areas to provide courses of vocational instruction in flour milling.

"The question, therefore, arises: What is the flour milling industry prepared to do to insure the full technical training of its young personnel?

"Will it be content to ignore the desires of the youth and leave him to acquire his technical training by evening studies after the age of 18? Or will the industry, in co-operation with education authorities, make the necessary plans to deal adequately with those living in the remote areas, as well as those within easy access of colleges of further education? Again, is the industry ready to fulfil only the minimum requirements of the new Bill, or is it prepared to go further and allow daytime release beyond 18 to some of its trainees—say to those aiming at the Final City and Guilds of London Institute Examinations? These are some of the questions which will be exercising the minds of members of the Technical Education Committee and on their answers will depend whether or not the achievements in technical education over the next 25 years will also merit the same pride as the present record."

British millers have long been convinced of the value of vocational education. Approximately 1,000 operative millers have enrolled in the industry's technical education course during the 25 years of its existence. Now, near the end of the war, the industry is not debating whether to continue the course, but is considering methods whereby the technical training course can be made available to more.

The following article is a condensation of two reports on technical training in the British flour milling industry, and of the plans for broadening the now existing vocational training facilities in that country.

Eliminating Dust Explosion Hazards

By Jess B. Smith
President, Associated Millers of Kansas Wheat

ON June 8, 1944, at the time of the Central States Safety Congress in Kansas City, the writer induced Hylton R. Brown, Senior Engineer, Bureau of Mines, U. S. Department of the Interior, College Park, Md., to come to Kansas City to deliver an address and give a demonstration on dust explosions. He did an excellent job. There was a large audience which quickly realized they were hearing an expert in his line.

Originally, Mr. Brown's special field was explosion hazards in mines, but gradually dust explosion hazards in all lines of industry have centered in his department and since the war dust explosion hazards in war plants have been one of his government specialties. We consider Mr. Brown the outstanding authority in the country on dust explosions, and fortunately for the milling industry, he has made something of a special study of dust explosions in flour mills and grain elevators.

Not so many years ago it was difficult to convince some persons that dust explosions could occur in connection with any and all kinds of dust—coal dust, wood dust, grain dust, flour, bran and even the metal dusts. It has been proven that dust of practically any and every kind from any and every product, when suspended in a dust cloud in the air, can and will explode under certain conditions. Only inert material (such as rock dust) with a very low ignition point, is resistant to explosion hazards.

Note the following tabulation of the number of explosions that have occurred to April 1, 1944, in some 20 different industries—840 explosions, 541 persons killed, 1,294 persons injured and a property loss of $73,049,322, and note particularly that grain elevators head the list, with flour mills fourth on the list:

EXPLOSIONS TO APRIL 1, 1944

	No.	Killed	Injured	Loss
Grain Elevators	166	122	321	$38,800,218
Wood Working	102	30	135	2,837,113
Feed and Cereal	94	63	226	7,439,510
Flour Mills	90	28	48	5,662,582
Starch and Corn Products	39	128	130	5,394,826
Cork	37	6	28	181,190
Pulverized Coal	26	21	26	92,359
Sugar Refineries	25	12	31	1,622,300
Fertilizer Plants	26	7	20	852,450
Malt Houses	23	2	18	747,500
Metal Dusts	53	56	105	1,824,465
Sulphur Dusts	23	3	39	30,095
Bark Dusts	14	..	2	587,600
Coffee and Spice	11	5	13	201,700
Cotton Mills	14	2	7	188,950
Paper	7	..	..	395,000
Phonograph Records	6	..	1	36,400
Pitch and Resin	15	14	57	2,098,472
Rubber	7	11	2	30,300
Miscellaneous	62	32	85	3,976,292
Total	840	541	1,294	$73,049,322

Note that starch and corn products come fifth on the list. There has been no loss of life reported in that industry since 1930 after they took precautionary measures, whereas there have been over 50 explosions in grain elevators since 1930. The facts warrant the statement that grain elevators and flour mills have not given this subject the attention it demands.

Research on dust explosions has been going on for a number of years and is still being carried on in the Bureau of Mines. Much valuable data has been accumulated. Recently the National Board of Underwriters has used this information in preparing a table which attempts to give a numerical rating to different dusts. The ratings range from 0 to 10, and are based largely on the pressures produced and the rate of pressure rise recorded in the laboratory tests. For the benefit of those who wish to obtain some idea of the seriousness of the explosion hazards in their plants or make comparisons between the explosive properties of different products, a few examples are given below arranged in the increasing order of inflammability designated by the numerical ratings 0 to 10.

"Burning nicely" might well be the caption for this picture taken during a fire at the plant of the Montana Flour Mills Co., Great Falls, Mont., July 17, 1943.

This picture shows what was left standing after an explosion and resulting fire at the Lawrenceburg (Ind.) Roller Mills, May 29, 1941.

0—Graphite - Anthracite
1—Carbon Flour - Indigo
2—Cocoa - Cottonseed Meal
3—Bran - Linseed Meal
4—Corn Meal - Alfalfa
5—Gluten Meal - Buckwheat Flour
6—Wood - Wheat Flour

Wheat flour, being very fine, is explosive when accumulated in a dust cloud. Wheat dust which settles in an elevator is practically as fine as flour, at least a part of it, and would rate for inflammability next to flour in a mill or mill elevator, and inasmuch as flour is confined more than wheat dust the danger of wheat dust explosion is greater than flour dust explosion.

Perhaps it is unwise to try to draw any definite distinction between the explosive points of dust, but the above table does give a miller or grain elevator operator some idea how the different dust products rate.

It is true that some dusts may produce in laboratory tests a pressure of 50 lbs per square inch, while others produce only 5 or 10 lbs, but 5 lbs per square inch is more than 700 lbs per square foot, and that is sufficient to seriously damage or wreck an ordinary building. For this reason it certainly is wise to adopt all possible precautions for prevention wherever a dust explosion hazard exists.

Many articles have been published in technical and trade journals with recommendations for adoption of different methods of explosion control. Fundamentally, they mean (1) Keep your plant free of dust, and (2) Eliminate all possible sources of ignition, such as use of nonsparking electrical and mechanical equipment, avoid shorts in electric circuits, defective sockets, switches, etc. Avoid metal products, nails, or anything that will cause sparks on the rolls, in hammermills, etc., nails in shoes on concrete floors or metal parts of floors, dropping crowbars or tools on concrete floors or on metal; in fact, anything that can cause a spark. Insecticides, certain types of drugs and some types of chemical compounds in a plant are hazards.

In all dusts, particularly grain dusts, some part is coarser than others and when a dust cloud forms, naturally the coarser, heavier particles by gravity accumulate in the lower strata of the cloud, the finer particles become suspended in the upper strata. Where the finer dust particles cloud together, there is where explosion hazard is greatest. This is due to the fact that the finer the dust, the more easily it is ignited, and the closer the particles or motes are together, the more easily does the ignition travel from one area to another.

Static or still dust clouds within a closed structure are more hazardous than a similar dust cloud that is moving out of the building through open windows or vents.

As to the effect of humid or damp air in minimizing explosion hazards as compared to dry air, this is only a matter of very small degree and only to the extent that a moist condition is slightly less inflammable than a dry condition.

This article is simply an attempt to touch the high spots, arouse interest in the subject. The writer understands that the Dust Explosion Hazards Committee of the National Fire Protection Association, 60 Battery March, Boston, Mass., has developed a code for the prevention of dust explosion in flour and feed mills. The writer has written for a copy, because doubtless it will contain more valuable information and suggestions than it would be possible to put in a bulletin such as this. If it proves to be what I hope it is, every member should have a copy and I will see what can be done about that.

Management, together with their superintendents, engineers and such people around the plant, must pay more attention to this subject, rather than pay no attention to it and regret it. From purely a humane standpoint, every precaution to avoid injury and loss of life is the duty of management.

We should adopt a code of preventative measures.

Protein in Wheat

(Continued from page 3a.)

soil fertility in order to produce large and profitable yields on a sustained basis.

HIGH FERTILITY A THREAT

High fertility, particularly abundant nitrogen is an actual threat to the production of low protein soft wheats. The logical way to attack the problem is to develop a balanced fertility with enough of each of the essential elements to produce a maximum yield without leaving a nitrogen reserve for excess wheat protein. That this can be done is shown by certain fertility studies in Ohio where the addition of phosphorus increased the yield of wheat and reduced protein content.

Another phase of the same sort of problem, but which must be approached in a different way, is that of whether to grow hard or soft winter varieties in Illinois, which normally would be considered in the soft winter area, or whether to grow a variety like Kawvale on the border between the hard red winter and soft red winter belts. The high nitrogen prairie soils of Illinois, in seasons when rainfall and temperatures approach what is normal in Kansas, produce a very satisfactory quality of hard red winter wheat. In seasons when rainfall and temperatures are more nearly like that of the eastern Ohio River Valley, yields are higher and the same variety of hard wheat is lower in protein content with predominant yellow berry. Since the hard winter varieties are more winter hardy, and they produce well under all circumstances, the Illinois farmer naturally continues to grow them. By recognizing the conditions responsible for varying quality, and the fact that farmers will continue to grow the varieties giving the most income, the processor can anticipate quality to some extent, and determine how to utilize each season's crop to best advantage.

Much the same situation faces the growers and users of Kawvale. The final solution of both problems lies with the plant breeder who can and must develop varieties of granulation characteristics that will give satisfactory results at either lower or higher protein levels, at the same time retaining the other characteristics of the hard red winters and Kawvale which make them satisfactory to the farmer. Such a wheat would be similar to Baart of the Pacific Northwest, which when protein is high makes a good bread flour, yet when protein is low produces a flour usable for cakes and similar pastry purposes.

Situation Different in Intermountain West

IN the wheat producing areas of the intermountain West the situation is entirely different than in either the central or the eastern regions. The northern part of this great area receives its precipitation in fall, winter and spring with little or none during the summer. In much of the area total rainfall is also low, except in more favored localities of higher rainfall, such as the Palouse of eastern Washington and adjacent Idaho. Because of the fact that in most seasons little of the rain occurs during the period of most active plant growth and greatest moisture use, the wheat crop in all of this region is dependent in large part on moisture stored in the soil. Under normal conditions, since the soils are deep and hold moisture well, the rainfall from the harvesting of one crop to the harvesting of the next is sufficient to grow a crop in the Palouse and similar sections. In the drier districts, as in the Columbia Basin of Oregon and Washington and in the dry farm areas of southern Idaho and Utah, one year's precipitation will not grow a profitable crop. In these districts it is necessary to use the clean fallow system in order to carry over the moisture from one year during which no crop is grown to be used in combination with that of the crop year in order to get paying yields.

RAINFALL INFLUENCES NITRIFICATION

The type of rainfall occurring in this western area, also, has an effect on the nitrogen problem, which in turn affects the protein content and quality of the wheat crop. Even in the localities of highest soil nitrogen content, the dry growing season hinders the process of nitrification. As a result, available nitrogen becomes a limiting factor in crop growth. The summer fallow system, through cultivation and the killing of weeds, maintains a more favorable moisture condition in the surface soil, and promotes nitrification and an accumulation of nitrates. Because of this train of circumstances summer fallowing is practiced, not only in the areas where moisture is the direct limiting factor in crop growth, but also in the more favored Palouse. Parenthetically, this latter is not necessary in the light of present information, but this phase of the problem does not need to be considered in the present discussion.

a little too little and a little too much

A small percentage too little of one ingredient and a trifle too much of another spoiled the griddle cakes made from a miller's prepared buckwheat flour. The miller didn't know what was wrong until he read the Monsanto Baking Laboratory report.

The leavening balance was off. A little less soda and a little more phosphate corrected the flour. When cakes then were baked in the laboratory, they turned out golden-brown, with close, uniform texture. They were tender and mild-flavored.

Services of the Monsanto Baking Laboratory and its capable staff are available to *all* millers without cost or obligation. For further information on these services, please write MONSANTO CHEMICAL COMPANY, Phosphate Division, 1700 South Second Street, St. Louis 4, Missouri. District Offices: New York, Chicago, Boston, Detroit, Charlotte, Birmingham, Los Angeles, San Francisco, Seattle, Montreal, Toronto.

MONSANTO CHEMICALS
SERVING INDUSTRY...WHICH SERVES MANKIND

HT PHOSPHATE
XC PHOSPHATE

In the more favored sections of the Pacific Northwest, as in the Palouse where moisture is not a limiting factor, wheat makes a very vigorous vegetative growth and a consequent heavy drain on accumulated nitrates. The final yield is large. Since little additional nitrogen is made available during crop maturation, the amount available during grain formation is limited and grain protein content is always low. In the drier areas of this region there is likely to be a considerable variation from year to year. In seasons when conditions are more favorable, the protein content may approach that of the higher rainfall sections, but will still be higher than in the latter because yields are less and available nitrogen for each bushel of grain is more. In drier years, when yields are lower, the protein content of the crop may be similar to that of wheat from the central plains states.

Location of Nitrates in Soil a Factor

SPRING wheat grown on fallow from the various localities of the Pacific Northwest is always higher in protein than winter wheat from the same localities, except in some of the drier areas when yields of both winter and spring wheats are not large enough to exhaust the available soil nitrogen. This is due to the fact that fall and winter rainfall following the year of fallow carries a part of the accumulated nitrate supply to a point in the soil where it is not reached by plant roots before the critical period for the development of protein in the grain. In the drier areas the same situation will exist for winter wheat, except that fall vegetative growth will reduce the total nitrates subject to being carried downward so that ordinarily this reserve for later use is less. Larger yields of the winter wheat ordinarily obtained also reduce the amount of protein for each unit of grain. However, when yields of winter wheat are not greatly different from those of spring wheat, the protein content of the two is much alike.

IRRIGATED WHEATS LOW IN PROTEIN

In irrigated areas in general the situation is similar to that outlined for the most favored wheat producing sections of the Pacific Northwest. With abundant moisture applied to produce maximum yields, nitrogen is largely utilized in vegetative growth, yields are large, and the supply available for building up grain protein is not large enough to produce high protein wheats. This is, of course, relative, depending on the nitrogen content of the soil, but as a rule irrigated wheats are soft and low in protein.

Seasonal variations in the protein content of the wheats from each of the areas discussed above are due to conditions prevailing in the areas which cause a departure from the normal situation in nitrogen nutrition of the crop. When, for example, rainfall is abundant during the growing season in either the hard red spring or the hard red winter areas, and temperatures and other factors are favorable for growth and the production of a large grain crop, the amount of available soil nitrogen for each bushel of grain is relatively less, and a crop of lower than average protein content results. The season of 1944 has been such a season in these two areas. Variations within these areas are dependent on the degree to which the balance between conditions favoring yield and those controlling the available nitrogen supply may apply. Soils of greater fertility and higher nitrogen content will produce higher protein wheat, all other factors being the same. Fields subjected to excess water for any considerable time, unfavorable to nitrification and promoting denitrification and even leaching out of nitrates, will tend, on the other hand, to produce a lower protein crop.

Results of Research on Protein Problem

THE effect of larger yields in one season as compared with another on the protein content of the grain is shown by some work done by the writer when on the staff of the Washington Agricultural Experiment Station in the early 1920's. Yields on a series of plots in the drier part of the state in 1921 ranged from 9 to 16.7 bus with an average protein content of 15%. More than one half of the 20 samples taken that year had a protein content of 15% or more. Yields from the same plots in 1923 ranged from 16.7 to 29 bus with an average protein of 13.3%. A larger number of samples was taken in 1923, but of the 60 samples taken, only one equaled the 15% protein reached by over one half the samples in 1921. Test weights in 1921 ranged from 58 to 60 lbs and in 1923 from 55 to 60 lbs, indicating that the differences in protein content were valid, any advantages due to shrivelling favoring the 1923 crop. Similar variations due to differences in yield could be pointed out from many sources. This general principle applies to the current season.

Early information on the 1944 crop

. . . *use* COLUMBIA FLOUR BLEND

BICARBONATE OF SODA

You can't be too particular about the ingredients of self-rising flour—whether your brand is established or just beginning to earn recognition. In Columbia Flour Blend Bicarbonate of Soda you have a preparation made especially for the milling industry . . . a free-flowing, non-caking mixture of U.S.P. Sodium Bicarbonate and Tri Calcium Phosphate supplied in a variety of sieve specifications.

Where U.S.P. Sodium Bicarbonate is preferred, Columbia U.S.P. meets or surpasses U.S.P. standards in every respect. In powdered or granular form—pure, white, of uniform particle size.

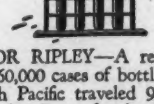
Protect your brand by specifying Columbia Bicarbonate of Soda—Flour Blend or U.S.P.—in your next contract.

COLUMBIA CHEMICALS

PITTSBURGH PLATE GLASS COMPANY
COLUMBIA CHEMICAL DIVISION
GRANT BUILDING · PITTSBURGH 19, PA.

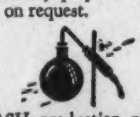
CHICAGO . . . BOSTON . . . ST. LOUIS . . . PITTSBURGH . . . NEW YORK . . . CINCINNATI
CLEVELAND . . . MINNEAPOLIS . . . PHILADELPHIA . . . CHARLOTTE

UNUSUAL STRENGTHS are among the numerous advantages obtained in Columbia's new thermosetting plastic, Allymer. Other points of superiority are its resistance to heat, crazing and marring . . . form stability . . . resistance to weather and to solvents, as proved in various critical war materials. Allymer is now available in sample quantities for experimental purposes. You may have research reports and other free data by writing.



ONE FOR RIPLEY—A recent shipment of 60,000 cases of bottled beer to the South Pacific traveled 9,000 miles with the breakage of only 27 bottles! This remarkable packaging achievement of the Glass Container Industry focuses attention on its splendid wartime record. Among the many products destined for export in glass to our fighting men overseas, 1944 requirements call for 678,800,000 beer bottles . . . 50,000,000 bottles for water purifier tablets . . . 98,600,000 insect repellent bottles!

PIG IRON production gets a big boost when high sulphur content can be reduced. Soda Ash has the stuff, chemically, to do it—but the problem is to bring it into sufficient surface contact with the molten iron. Columbia solves it with its Soda Briquettes—compressed pellets composed chiefly of Soda Ash. Added to the ladle at the time the pigs are cast, Soda Briquettes get the surface contact necessary for effective desulphurizing—and reduce expensive dusting losses. A newly prepared folder will be furnished on request.



SODA ASH production records illustrate the tremendous Twentieth Century growth of the nation's chemical industry. A basic chemical for the Glass industry, Soda Ash is also used extensively by the Textile and Paper industries and serves in a wide variety of cleansing operations. In a single month, total U.S. production of Soda Ash now approximates that for the entire year of 1899 . . . and Columbia's own annual production exceeds that tonnage by a substantial margin.

COLUMBIA CHEMICALS include Soda Ash, Caustic Soda, Sodium Bicarbonate, Liquid Chlorine, Silene EF (Hydrated Calcium Silicate), Calcium Chloride, Soda Briquettes, Modified Sodas, Caustic Ash, Phosflake, Calcene T (Precipitated Calcium Carbonate) and Calcium Hypochlorite.

from the hard red winter wheat area indicates a protein level possibly 2% less than the normal average. The reason for this may be due to a train of circumstances somewhat as follows. The Kansas Agricultural Experiment Station years ago proved the value of early plowing in preparing the winter wheat seed bed, and linked the advantage of early plowing to improved conditions for nitrification in the early plowed soil with consequent larger supply of available nitrogen. More recent work has also shown similar advantages from summer fallow in the drier areas of the state. The season of 1943 was very dry during late summer and fall, to a degree preventing the seeding of wheat until a very late date, in many cases so late that germination did not occur until midwinter. This dry weather was also unfavorable for nitrification and so reduced the total available nitrate supply. This condition, together with the fact that the wheat crop made almost its entire foundation and vegetative growth from late spring on and under conditions favorable for utilization of nitrogen in vegetative development, would naturally leave a smaller margin of nitrogen available for developing protein in the large resulting yield of grain.

SOME CLIMATOLOGICAL FACTORS

In the hard red spring wheat area moisture was abundant during the growing season and temperatures were relatively cool, favoring a heavy growth and high yields. In some local areas rains were so frequent that the soil remained so wet as to prevent most favorable conditions for nitrification. Such combinations tend to reduce the protein level of the crop.

In the Pacific Northwest 1944 yields are good in the drier districts which produce the highest protein wheats in that region. The yields are not as high as in 1943, and protein should be better on the average than last year, although not as high as in years of lower yield.

In the soft red winter belt 1944 yields are higher than average and protein content normally would be expected to be lower than average. There is some indication that, if anything, protein is higher than average. This might be due to the fact that the maturation period in the soft winter area was unusually dry and corresponded in temperature and other conditions more nearly to that normally occurring in the plains states. As noted later, this affects carbohydrate synthesis and the deposit of starch in the wheat kernel, and consequently the relative proportions of starch and protein. While unquestionably the basic principles (which have been previously outlined) apply in general, this variation suggests deficiencies in our information, and the danger of too sweeping conclusions.

Factors That Affect Carbohydrate Synthesis

OBVIOUSLY the foregoing discussion has simplified the problem of wheat protein content by emphasizing the primary relationship of nitrogen nutrition. It is granted that other factors have an important bearing on the end result, but in large part they contribute in one way or another to the effects of the primary nitrogen nutrition factor. For example, relatively cool temperatures during the period of kernel growth and maturation promote the formation of carbohydrates, prolong the maturation process and result in storing larger quantities of starch with consequent lower percentage of protein in the ripe grain.

The relatively high temperatures and lower humidities which normally prevail in the hard red winter and hard red spring areas after the crop has headed tend to reduce carbohydrate synthesis and storage and to shorten the maturation period resulting in grain of higher protein content and harder texture. Varying degrees of high temperature, low humidity and moisture shortage result in varying degrees of forced maturity and reduction in grain yield and test weight. A season such as 1944 with abundant moisture and relatively less hot weather results in more effective carbohydrate synthesis and consequently less protein percentagewise in the grain.

EFFECT OF VARIETY ON PROTEIN

Variety without doubt is important in determining protein content, and more particularly protein quality. As a general rule, rank growing varieties which utilize a larger proportion of available nitrogen in vegetative growth are likely to produce grain of lower protein content. Heavy yielding varieties also are likely to produce grain of lower protein content, if there are any serious limitations in available nitrogen. Variety, also, determines the fundamental character of wheat protein so long as other factors are favorable. Differences in the character of protein in Tenmarq and Chiefkan are inherent in the varieties and remain even when both carry the same protein content. This is a difference which is recognized by the plant breeder, and new varieties must be introduced only as their protein character

THANK YOU MISTER..FOR THE

New Dress!

She's a sweetheart, and one of your star salesmen, too! She's all decked out in a brand new dress made from the cotton bags in which you pack your product.

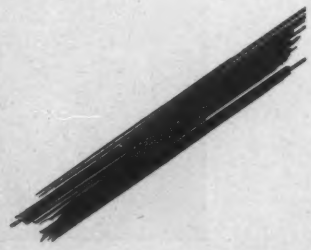
Mother has learned that cotton bags can be converted into many attractive things to wear . . . that cotton bags provide a ready source of sturdy material for home sewing.

National advertising in farm publications, in dominant home economics magazines, in 2,800 small-town newspapers, is increasing the interest of mothers all over America in sewing with cotton bags. It is building their preference for cotton-bagged products.

Tens of thousands of requests are being received for the 32-page pattern book, "Bag of Tricks for Home Sewing," which shows things to make from cotton bags. Many teachers are making the booklet a part of their classroom sewing study.

You can profit . . . . .

by calling attention to this booklet in your own advertising if you are now packing your product in cotton bags. If you are not using cotton bags, talk to your bag manufacturer immediately—ask him for a copy of the booklet, and full information on how you may tie-in with this program, or write



NATIONAL COTTON COUNCIL of AMERICA

MEMPHIS 1 - P. O. Box 18 TENNESSEE

meets use requirements. That, however, is a matter not concerned with the problem of seasonal variation.

DISEASES MAY AFFECT PROTEIN

Another factor, which is probably not recognized by many as having a bearing on wheat protein content, is the presence or absence of leaf diseases. The disastrous effects of stem rust, causing such a destructive breakdown in stem tissue as to greatly increase water loss by the plant, result in such a marked shriveling and forced maturity of the grain as to draw attention away from other of its effects when present in less serious amounts. As an illustration of this fact, leaf rust of wheat, not usually producing such spectacular effects as stem rust, was considered until rather recently as not particularly serious. Work at the Indiana, Kansas and Minnesota agricultural experiment stations has shown, however, that leaf rust is a serious menace. When infection occurs early in the life of the plant it can be almost as destructive as stem rust. Even when it attacks the plant rather late in the growth period, as it quite commonly does in the northern United States and in Canada, it causes an important reduction in yield, and a measurable reduction in the protein content of the grain. The growth of the rust fungus in the leaf tissues removes nitrogen otherwise available for the formation of grain protein, and in sufficient amount even to overbalance the loss of carbohydrate synthesizing tissue from the leaves. As noted above, other effects of stem rust are so severe as to mask this result, but there is reason to believe that this rust also reduces wheat protein content when infection is not sufficiently severe to cause too serious loss. Other leaf diseases can be assumed to produce similar results. It is quite probable that some of the new varieties which are resistant to these diseases owe some of their relatively high protein content to absence of the diseases.

CALCIUM NOT A PRIMARY FACTOR

The soils which grow our high protein wheats are high in lime. Because of this fact, it has been suggested that this is an essential requirement for growing such wheat. While the soils of the hard red winter and hard red spring wheat areas of the United States are high in lime, they are also high in organic matter and nitrogen. That this latter is the important factor in determining the protein content of the wheat grown on these soils is indicated by comparison with other high lime soils in the far West. These latter soils are also high in lime, but except under most favorable conditions are low in organic matter and nitrogen. When water is not a limiting factor in producing good crop yields, none of them produce high protein wheat. In every case the low protein can be traced to deficient soil nitrogen. Lime may have an indirect effect not known to us on the basis of present knowledge, but it seems evident that it is not a primary effect.

In attempting to outline a basis for interpreting variations in year to year crop quality, it is obviously impossible with present knowledge to explain all cases. Many factors may affect nitrogen nutrition and the accompanying processes of carbohydrate synthesis and storage which play a part in final grain composition. The principles as outlined do, however, give a general basis for arriving at some understanding of the problem. Even though this discussion does no more than to stimulate a constructive approach to a finally more complete understanding of the underlying principles controlling protein content in wheat, it should be of some use.

——BREAD IS THE STAFF OF LIFE——

ONE-MINUTE QUIZ

Without hesitating and "trying to remember," see if you can supply the answers to these questions about your mill:

Where are the fire extinguishers located on each floor?

Is your mill equipped with an extinguisher to fight an oil or gasoline fire?

Where is the nearest fire alarm box located?

What is the telephone number of the fire department?

Where is the master electrical switch for the power circuit?

——BREAD IS THE STAFF OF LIFE——

All places where belts discharge grain should be provided with adequate positive air aspiration both above and below the grain stream. Trippers may be equipped with self-contained fan units mounted on the tripper carriage and driven by the belt or by other effective means. It is recommended that air aspiration or other effective means be applied to the ends of belts where no grain is discharged to prevent tailings of chaff and dust from accumulating on the floor at the end of the belt.

——BREAD IS THE STAFF OF LIFE——

In measuring wheat or other grain, "test weight" refers to the bulk weight of 2,150.42 cu in of the grain, but the measured substance must be placed in the container in such a way that undue packing is avoided.

FOR BETTER GROWTH AND HATCHABILITY

Riboflavin (vitamin B_2 or G) is necessary in the growing chick for normal function and maintenance of the nervous system. A deficiency causes high embryonic mortality, curled toe paralysis, and restrains normal growth. Mature poultry likewise requires adequate B_2 to maintain high hatchability.

Although the amount of additional B_2 required is small—only around 2 grams (1/14 of an ounce) per ton of feed—it exerts a powerful and vital biological effect. Pure crystalline riboflavin is no longer on allocation and costs only 23¢ per million units (one gram).

Your feed formulae, no matter what the ingredients are or in what proportion they are mixed, must have a definite riboflavin potency. Over 100 scientific reports* prove that hatchability and growth are directly related to adequate B_2 content.

*If you have not already received your copy of "Riboflavin—Its Use in Poultry Rations" by Dr. G. F. Heuser of Cornell University, be sure to drop us a request without delay. This 18-page brochure gives an unbiased appraisal of all available scientific literature concerning the use of riboflavin in poultry feeds and renders a distinct service to the cause of better poultry nutrition.

RIBOFLAVIN 'ROCHE'

"VITAMINS BY THE TONS" pour in a steady stream from this ultra modern scientific plant, to meet military, civilian and feed requirements of America and her Allies. Unremittingly every "batch" must not only fulfill U. S. Pharmacopoeia requirements, but also rigid specifications developed within our own laboratories, still pioneering. When you specify 'Roche'—B_1, B_2 or C—you specify "the finest"!

HOFFMANN-LA ROCHE, INC. VITAMIN DIVISION • NUTLEY 10, NEW JERSEY

SAFETY IN HANDLING BELT SHIFTERS

Reproduced from a pamphlet published by the National Safety Council, Inc.

BELTS should never be shifted by hand. Such a practice, soon or later, results in a serious injury, either by cutting the fingers or hand by contact with the edge of the belt or its fasteners, or by catching the fingers or hand between the belt and the pulley.

Belt shifters may be divided into two general types: those which shift the belt by means of forks fastened to a bar connected to a shifter handle; and those which shift the belt by means of a series of levers or chains. The latter type is generally used for shifting cone belt pulleys on lathes, shapers, drill presses, slotters and other machines driven by cone pulley belts.

All belt shifters should be positive in action and should be provided with a locking device to keep the belt in the proper position and to prevent it from the cone pulley or weaving from side to side. The belt guides can be moved only creeping. If the forks of the shifter are provided with rollers, wear on the edges of the belt and the possibility of a ragged edge of the belt catching in the forks will be reduced to a minimum. The distance between the forks should be such that the belt does not touch them except when the belt is shifted.

One mechanical cone pulley belt shifter consists of a simple arrangement of an upper and lower bracket, and operating lever, a cut steel pinion and rack to actuate the sliding shifter arms, and two roller belt guides. The belt is easily shifted to the desired steps of the cone pulleys by grasping the U-shaped offset of the operating lever with the left hand and turning the lever to the right or left as may be required. The belt guides are firmly held sidewise by an automatic gravity lock which prevents the belt from contacting with the shoulders of by manually turning the operating lever.

Another cone pulley shifter consists of two relatively fixed sections of rack, one on the countershaft and the other on the machine frame. On each of these racks is mounted a belt shifting bracket which is operated by means of a pinion gear that engages the rack and moves the two brackets in the same direction, one in advance of the other. A conveniently located lever operates both pinions. When the operating lever is turned, the first half of the revolution moves the belt from a larger to a smaller step on one of the cone pulleys and the next half revolution moves the belt from a smaller to a larger step on the other cone pulley. The belt can be moved from its position only by turning the operating lever.

Belt shifters should be so located that they can be easily and quickly operated, will not interfere with machine guards, and can be easily inspected, maintained and repaired.

Care should be taken to locate shifter handles in safe positions. If it is necessary to locate the shifter handles over work places, the handles should not extend lower than within 6 feet 6 inches above the floor level; this will help to prevent men striking them. Shifter handles should not be located over or along passageways where they are liable to be struck and accidentally moved to the running position.

The handles of all belt shifters of the same type in any shop should move in one direction to stop the machines; that is, all to the right or all to the left. Otherwise there may be confusion resulting in injury to someone or in damage to property. It is understood that the moving of all belt shifters of a type in one direction does not apply to friction clutches on countershafts carrying two clutch pulleys with open and crossed belts respectively. In such cases the belt shifter handle has three positions and the machine is at a standstill when the handle is in the neutral or center position.

—BREAD IS THE STAFF OF LIFE—

CHANGING SIFTING MEDIUMS

Given a certain milling program and certain equipment for carrying it out, we try to adjust our reducing machines (including the break rolls) in such a way that the various sifting apparatus provided will make separations as nearly perfect as possible and send on to the next machine in the line just the right amount of material for reduction. If this cannot be done even with efficient rolls and cloth for any of several reasons, among which may be unfavorable conditions of temperature and humidity, faulty wheat conditioning, or even a mill mix with inherent deficiencies, then changes in the sifting mediums will be justified.—*Studies in Practical Milling.*

★ IT'S AN OLD AMERICAN CUSTOM ★

TOWN MEETING

The spirit of democracy is at its finest in the Town Meeting, where every citizen has a chance to air both grievances and opinions.

To an American it is a God-given right to criticize anything he disagrees with, but we have always coupled our criticism with constructive action and this alertness is one of the chief elements of American greatness.

Swiss Silk has always been alert to every changing need of the milling industry, and our silks have been standardized with such care, that millers know they can depend on Swiss Silk for every bolting need.

Specify "SWISS SILK"

BODMER • DUFOUR • EXCELSIOR • SCHINDLER • WYDLER

Chemistry for the Operative Miller

By Dr. C. O. Swanson
Kansas State College

Sources of Chemical Substances in Wheat

THE unusual is more likely to arouse our interest than the commonplace. Yet, what happens daily before our eyes is full of wonder when we stop to observe. A wheat kernel is so small that there are about 14,000 in a pound, still when that tiny seed is put into moist soil it sprouts and grows into another wheat plant which sometimes may produce over 100 kernels. The life principle which was laid down in the kernel at the time of its formation starts all this transformation.

The purpose of the wheat kernel is to produce another plant, and for this it is well fitted by nature. The start of the embryo leaves and roots is in the germ. When the kernel is moistened by the water in the soil and the temperature is suitable the growth processes begin. In the seed are all the substances, principally protein and mineral elements, needed for initial growth. By means of the proteolytic enzymes, the proteins are broken down into the amino acids which are used to build new tissues. The oxidation of organic compounds supplies energy. The mineral elements needed in the transformation caused by life's processes, are laid down in the kernel when it is formed. But for these mineral elements not a single wheat kernel could sprout and grow into another plant which in turn produces more wheat kernels. The mineral elements are generally those which are not removed by burning but remain in the ash.

SOIL, AIR AND WATER

Enough material is stored in the tiny kernel to produce leaves which reach above the ground and also roots which ramify in the soil. As soon as the material in the kernel has been utilized the infant plant is put on its own. Henceforth, it must get its material for living and growing from the soil, from the water, and from the air. The mineral elements come from the soil, the other elements come from water and air. Since ash constitutes only about 2% of the wheat substance, it follows that only a small part comes from the soil. The nitrogen which constitutes about 2% of the wheat also comes directly from the soil to the wheat, but the ultimate source of the nitrogen is the air.

BASIS OF THE WORLD'S FOOD SUPPLY

These growth processes are the foundation of the world's food supply. Most foods for man come directly from plants, and since animals live on plant substances plants ultimately furnish all food. This is a commonplace phenomena which happens before our eyes, and it excites our wonder only when we stop to consider the wonderful processes. Life persists in wheat only 10 to 15 years under favorable circumstances. On the preservation of this life and subsequent growth into other plants depends the well being of the human race.

SIX ELEMENTS CONSTITUTE 98% OF WHEAT

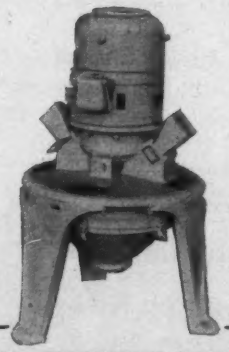
The elementary composition of the main compounds or group of substances in wheat is comparatively simple. Water, the simplest, consists of two molecules of hydrogen and one of oxygen; the carbohydrates and fats contain these two elements in addition to carbon. All proteins contain these three elements and in addition, the elements nitrogen and sulphur. Many of the more complex proteins also contain phosphorus. Thus about 98% of the wheat kernel consists of only six elements. Carbon and oxygen constitute about 90%, hydrogen about 6% and nitrogen about 2%. Sulphur is somewhat less than 0.2% and phosphorus somewhat less than 0.4% of the total. The rest consists of over 20 elements, most of which are present in minute amounts.

ORGANIC AND INORGANIC COMPOUNDS

When a sample of wheat is heated in the ash furnace, a little less than 2% remains as ash. The carbohydrates, fats, proteins and some other compounds are destroyed, mostly by being changed into gases, which pass into the air. The substances which are thus destroyed are conveniently classed as organic and those which resist the heat treatment as inorganic. The division is not sharp. Some elements, notably sulphur and chlorine which are classed as inorganic, will also be largely changed into substances that pass off with the gases. While the ash thus contains most of the inorganic elements it does not contain all. The total amounts of some inorganic elements which occur in the larger amounts may be determined by analyzing the wheat ash but several others must

ANALYSES
FLOUR FEED WHEAT
PROMPT ACCURATE LABORATORY SERVICE
THE MID-WEST LABORATORIES INC.
314 S. BOX 27 COLUMBUS OHIO

FREE!
Information in this new bulletin
will help you to insure high quality standards for
MILLED PRODUCTS



This "ENTOLETER" handles 75 barrels per hour. Others made to handle 10, 25 or 50 barrels hourly. The machine requires small space and low headroom. Operates simply and at slight cost.

Write for free copy of this interesting bulletin, containing 6 pages of informative text and pictures on the latest "ENTOLETER" applications. The mechanical "ENTOLETER" insures a new *positive* method of insect control for flour mills and food plants. It serves most effectively to protect quality of products and helps to avoid waste of vital materials.

Independent tests, supported by actual plant performance records, show that the "ENTOLETER" is 100% effective in destroying insect eggs and all other forms of insect infestation in free-flowing dry materials.

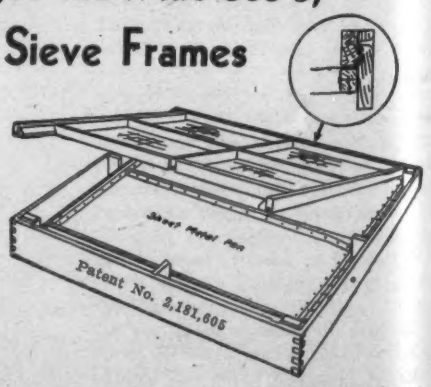
Approximately 3 ft. high by 2 ft. in diameter, "ENTOLETERS" are easily installed. Prompt deliveries. ENTOLETER DIVISION, The Safety Car Heating & Lighting Company, Inc., 230 Park Avenue, New York 17, N. Y.

ENTOLETER
INFESTATION DESTROYER
REG U S PAT OFF

CHECKERBOARD ELEVATOR CO.
MILLING WHEAT • COARSE GRAINS • MILLFEED
Hard and Soft Winter Wheat
ST. LOUIS • KANSAS CITY • MINNEAPOLIS • DENVER • BUFFALO

Some Reasons for the Wide Use of
NOR-VELL Sieve Frames
- Increased Bolting Capacity
- Last Longer
- No Joint Wear
- Made to Fit Any Square Sifter
- Immediate Delivery

Ask for Particulars



NOR-VELL SIEVE CO. • 1510 W. 29th Street Kansas City, Missouri

OUR SALT carries an umbrella!

Know why an Englishman carries an umbrella? To *keep dry*, of course . . . and today we've developed a practical "umbrella" for Diamond Crystal Salt —to help keep it dry and prevent caking.

Salt cakes when exposed to excessive humidity, because moisture condenses on salt particles, forming a thin layer of brine. Then, in dry weather, the brine evaporates and the crystals knit together.

Our research laboratory has found a number of ways to help prevent salt caking. Removal of moisture-attracting impurities, such as calcium chloride, helps. So does complete removal of fines by careful screening. Most important is to provide salt with a moisture-vapor-resistant package to keep out dampness.

Take our Flour Salt bag, for example. It is composed of three 50-lb. sheets of kraft and two 25-lb. sheets of kraft, laminated together with 40 lbs. of asphalt per ream. That's a lot of asphalt, and it costs us more money—but our moisture-vapor transmission tests show that this bag is well worth the extra cost. The bag is even sewn with *waxed thread* to seal the holes made by the sewing-machine needle. That's *real protection*—one reason we have been able to eliminate caking as a major problem!

NEED HELP? HERE IT IS!

If *you* have a salt problem, write our Director of Technical Service. He will be happy to help! Diamond Crystal Salt, Dept. A-1, St. Clair, Mich.

DIAMOND CRYSTAL
ALBERGER PROCESS **SALT**

PERFECT FLOUR BAGS

Vacuum Cleaned — Reconditioned Specialists

SERVICE BAG & BURLAP CO.
914-916 McCarter Highway,
NEWARK 2, N. J.
"Our Inspection Is Your Protection"

be obtained by special methods which start directly with the wheat substance.

USE OF ELEMENTS

The most obvious use of elements in wheat or other plants is to serve as building material. Carbohydrates and fats are built of the three elements, carbon, hydrogen and oxygen. All photeins contain, in addition to these three, the elements nitrogen and sulphur. Some of the more complex proteins also contain phosphorus. However, these building processes will not take place unless various mineral elements come to the plant from the soil. Plants cannot live and function without these soil elements. Since all these constitute less than 2% of the wheat substance, it follows that the amount of each needed by the plants is comparatively small. But without these tiny amounts the plants cannot build carbohydrates, fats and proteins which comprise about 98% of the dry matter in wheat.

SUPPLY OF SOIL ELEMENTS LIMITED

The source of carbon, which constitutes about 45% of the dry matter, is partly from the air and partly from water. Hydrogen comes from water. The supply of these elements may be considered abundant which means that they are not limiting factors in crop productions. Any one of the elements obtained from the soil may be a limiting factor. This is particularly true of nitrogen since it is required in larger amounts than any other of the elements obtained from the soil. In the past century some writers predicted starvation for mankind because the available supplies of nitrates would be exhausted. Chemical methods have since been discovered to fix the nitrogen of the air. The amount of nitrogen in the air over one acre of land is estimated to be enough for about 40,000,000 bus of wheat. The ultimate source of nitrogen is therefore unlimited, but it takes energy for its fixation. The soil elements are distinctly limited, and the future food supply of the world depends on their conservation.

ESSENTIAL AND NONESSENTIAL ELEMENTS

Plant physiologists have determined by elaborate experiments that certain elements are essential in addition to those used as building material in order that the building processes in the plant shall take place. While some of these elements do not form a part of the finished compounds, the building processes which result in these compounds will not proceed in their absence. Such elements as well as those used for building are classed as essential. There are still some other mineral elements which are present in small amounts whose essentiality has not been established. For the present they are considered as nonessential and their presence is due to being absorbed from the soil together with the known essential elements.

NUMBER OF ESSENTIAL ELEMENTS

Before 1900, books on plant physiology usually listed 10 elements as absolutely essential to plant life. First of all were the six used as the main building materials: Carbon, hydrogen, oxygen, nitrogen, phosphorus and sulphur. Then there were four others: Potassium, calcium, magnesium and iron. If any one of these four were absent in the culture medium, complete growth would not take place. When a seed was planted in a culture medium and if any one of these four elements were absent, the seed would sprout, develop a few roots and leaves and then die. The initial growth could take place because there was stored in the seed small amounts of these essential elements. When these amounts were utilized growth would stop.

WATER AND SAND CULTURES

Sand and water cultures are used to determine the absolute needs of any one of the elements taken from the soil. Pure sand consists of silicon dioxide. All the elements thought to be essential except the one tested are added to the purified sand used as the soil. Thus when all needed elements in appropriate salts are present except one, potassium for instance, the growth processes will stop as soon as the amount of this element present in the seed has been utilized. Water cultures have been found preferable to sand cultures. Obviously the need for silicon could not be determined by sand cultures. If this water contains, in solutions, all the elements needed the plant will grow to maturity and produce viable seeds. Any one element is judged to be essential if its absence results in death or in the disturbance of some physiological function. The latter is shown in lack of growth, vigor, in lessened resistance to unfavorable growth conditions or plant diseases. By such methods about 20 or more elements have been shown to be essential. The exact line of demarcation between the essential and nonessential elements used in minute amounts is not definitely established.

The needed amounts of certain elements are extremely small. In fact, the slight impurities found in salts used in the earlier cultures were sufficient for the plant needs. The amount of silicon needed by the plant is so small that all which is necessary can be obtained from the walls in the glass vessels used for the water culture. With the development of nutrient salts of higher degree of purity and better technique the list of essential elements has been made to include several which formerly were not classed as essential.

PURE SILK BOLTING CLOTH
and
GRIT GAUZE

CANMORE BRAND

Woven in Scotland
under Swiss Technical
Supervision from
PURE SILK of
the Finest Quality.
The Most Durable
and Uniform in mesh

Representatives in Canada, U. S. A.:
KIPP-KELLY, LTD.

68 Higgins Avenue
WINNIPEG

THOMAS Robinson & SON LTD
ROCHDALE. ENGLAND

MILLING OF ROLLED OATS

By Joseph Loufek

FERDINAND SCHUMACHER of Akron, Ohio is generally regarded as the first commercial producer of oatmeal in the United States. He first sold oatmeal in 1854. Mr. Schumacher operated a general store and probably ground oats on a hand grinder and used a sieve to separate the fine meal from the hulls. He first sold his product in glass jars.

At that time some oatmeal was imported from Scotland and was sold by apothecaries for use by invalids and persons in ill health. Mr. Schumacher decided to go into oatmeal milling on a larger scale and built a small mill, gradually increasing its capacity and in the 1880's he had come to be known as the oatmeal king of America. He retired from the oatmeal business in 1899.

Soon after Mr. Schumacher had built his mill, many others started building oatmeal mills with capacities of 25 bbls or more per day. At first, oat milling was a rather promising industry, but as the years went by, many oat millers found out that it was not all pleasure and high profits. The industry was overbuilt and the American public did not consume the output. Export trade took only a portion of the capacity, mostly in steel-cut oats, and different grades of ground oatmeal for cracker factories and such.

Some of the mills had capacities of from 300 to 500 bbls daily and the only way to make sales was to cut prices. Naturally there was a limit to price-cutting and soon the mills started to consolidate into groups. Even these consolidations were not profitable ventures at times. About 1891 the American Cereal Co. was organized and a combination of several mills was made. In 1901 the Quaker Oats Co. was founded. More mills were taken into the new company, some mills being of small capacity. The small mills could not produce rolled oats at a cost to compete with the larger mills and many were shut down. The Great Western Cereal Co. was one of the principal competitors of the Quaker Oats Co. It was purchased in 1911 by the Quaker Oats Co. and now that company is the chief producer in the industry. There are several independent oat mills in operation in the Midwest and on the Pacific Coast.

22,000 BBLS DAILY CAPACITY

The total capacity of the oat mills in operation in the United States has been estimated at about 22,200 bbls. Canadian mills have about one-half that total capacity. The mills in the United States use about 82,000,000 bus of field oats per year, which is a rather small percentage of the total crop. A higher percentage of oats is used by feed mills, but at that, government estimates show that less than 10% of all the oats produced leaves the farms. The total production of oats now averages about 1,018,000,000 bus.

The standard weight per bushel for oats is 32 lbs. The weight varies from 22 to 38 lbs. Oats fairly free of barley and other grains and weighing from 33 to 35 lbs per bu are best for milling. From 10 to 16 bus of oats are required to produce a barrel of rolled oats. A standard oat "barrel" is 180 lbs. A fair average yield runs about 12 bus (384 lbs) on oats from Illinois, Iowa, Nebraska, or Minnesota.

Oats grown in the western states and Canada are much larger and the weight may run to more than 40 lbs per bushel. The following products result from milling 384 lbs (12 bus) of oats: 180 lbs rolled oats; 101 lbs oatfeed; 76 lbs light oats; 8 lbs middlings; plus 19 lbs for shrinkage.

Shrinkage results in drying oats preparatory to milling. Fields oats may contain 12% moisture and are dried down to 6½% or less moisture. Rolled

★ ★

ABOUT THE AUTHOR

Mr. Loufek, the author of this article, was engaged in oat milling during practically all of his milling career. He began in 1893 with the Quaker Oats Co. in Davenport, Iowa, and later superintended the building of oat mills for the Purity Oats Co. in Keokuk and Davenport. At the time of his retirement, he was with the Ralston-Purina Co. at Davenport.

★ ★

★ ★ *Intelligent and Experienced Engineering Service* ★ ★

GET READY NOW
for Your POST-WAR MILL

IMMEDIATELY after the war all the plans you have in mind now for the improvement of your flour or feed mill will come to a head. You will want what information you need quickly.

NOW is the time to prepare for V-Day in your plant.

Ask us about the machinery you want to replace or improve. We may be able to do it at once.

Or we will put you in line for immediate action when things do open up.

You should, by all means, get your thoughts on paper. Let us get your plans on our drawing boards in a manner that will permit the ideas to go to work quickly.

Equipment, repairs, expansion, improvement —all these can be accomplished far more quickly than you may realize.

Get in touch with us today.

THE GENERAL MILL EQUIPMENT COMPANY

2021-23 Pennsylvania Avenue KANSAS CITY 10, MISSOURI

oats contain 10% moisture and oatfeed about 7%.

SIX STEPS IN MILLING PROCESS

There are six general steps or operations in the production of rolled oats or oatmeal as the housewife calls the product. These operations are, in the order performed: Cleaning the oats, drying, grading and hulling, separation of the hulled from the unhulled oats, flaking the groats, and finally, packing.

Oats are very uneven in size. There are large, medium and small or pin oats; heavy or light, and short or long berries. It requires a lot of machinery in the cleaning house to grade out impurities such as short straws, weed stems, seeds of all kinds and other grains such as corn and wheat. Chaff and light oats are taken out by air suction. A scalper may be used to remove sticks, long straws or anything else that might interfere with the free flow of grain from the storage bins.

Oats cannot be cleaned on one machine. A separator first takes out corn, weed stems and some over-size oats. The bottom screen of the separator usually is used to take out sand and small seeds while suction removes dust, chaff and light oats. Good care must be taken in the cleaning house to remove unusually dark weed stems because if they are broken up into short pieces they will go with the milling oats into the drying house and from there to the mill they are hard to separate and some of the dark pieces may appear in the finished product. Small seeds such as mustard can be taken out on sand screens. Large seeds such as wild bean, wild rose seed, small wheat, cockle, and many others are removed on cockle machines.

After the oats go through several separators and many other cleaners, they are ready for the drying house. There are many types of dryers; some are fired with coke and others use steam coils for the source of heat. Many mills use what are called steam dry pans. These pans are built in batteries of six or more in a frame, one above the other. Oats go into the top pans and are moved by sweeps into the pans below. The flow of oats is regulated by gates on the side of each pan. The heat is derived from steam jackets between the pans.

HULLED OATS CONTAIN SIX AND ONE HALF PER CENT FAT

Hulled oats or groats contain about 6½% fat which is not found in any other grain. When the germ is removed from wheat, barley or corn, very little fat is left in the grain. The heat treatment of oats preserves the fat to a certain extent so that the grain does not become rancid.

It is a general practice to store dried oats in bins for 12 hours or longer in order that the remaining moisture in the grain will become evenly distributed. Small oats may be too dry and large berries may contain too much moisture. Field oats as received contain from 10 to 14% moisture and are dried down to 6% or less moisture.

Dry oats from the storage bins are taken into the mill and are graded into large, medium and small sizes before going on to the hulling stones. The stones are about six inches thick, usually 48 inches in diameter and are bolted on cast iron backs. They run from 195 to 200 r.p.m. A stone about six inches thick, with proper care, will last about 20 years.

The oats are run between the stones, and the hulls, being quite dry, crack and peel off. Stones require redressing about each three months. It is very important to keep the upper runner in good balance. The bed stone, which is stationary, must be kept perfectly level and the upper stone must be trammed so the space between the stones is the same all around. Stones poorly dressed, out of level, unbalanced or out of tram will break up too many good groats.

Each size of oats is hulled separately. The hulling stones are set far enough apart to allow the oats to tumble end on end and the hulls are split off rather than ground off and about 95% of them are freed on going through the huller once.

The mixture of hulled and unhulled oats, loose hulls and dust is elevated to hexagon reels which whip off and remove the dust. No. 16 or 18 wire cloth on reels not only removes dust but also acts as a scourer, taking off much of the fine, bristle-like brush from the groats. As the hulled oats travel over many other graders in further processing, more and more of the bristle comes off. This is why oat milling requires so many aspirations.

Loose hulls are removed on aspirators. After the dust and loose hulls are removed on reels and aspirators, the milling separator can be used as the next machine. Screens scalp off any long oats that slipped through the huller. The first suction on the separator takes out hulls that slipped through the aspirator and the second suction will take out chips and pin oats.

Next comes the rather complicated problem of separating unhulled oats

A DOZEN MORE biscuits from

Comparison proves V-90 is different! For example . . .

When a V-90 dough is rolled out to a thickness one-third less than an ordinary self-rising flour dough, biscuits of approximately the same height and volume result: Furthermore, one-third more biscuits are obtained from an equivalent amount of V-90 dough. Yes, and those V-90 biscuits, while almost identical in size, are a third lighter by actual weight.

The reason for this greater yield is easily explained. Rolling the V-90 dough thinner obviously provides a greater area from which more biscuits can be cut. The remarkable leavening action of V-90, however, raises the thinner dough to the same height that ordinary phosphate raises the thicker dough. While the V-90 biscuits are therefore of the same size, each is considerably lighter, and many more of them can be baked from the same amount of dough. Here are average results from many laboratory bakes:

	Ordinary Phosphate	*V-90*
Weight of self-rising flour	1 lb.	1 lb.
Thickness of dough	⅜"	¼"
Weight per biscuit	0.61 oz.	0.45 oz.
Height of 6 biscuits	6.5"	6.4"
Calculated total biscuits per lb. of flour	38.6	51

Where you get only 39 biscuits of a certain size from a pound of ordinary self-rising flour, 51 biscuits of the same size can be baked from the same amount of V-90 self-rising flour . . . *a full dozen more!* Size of the biscuits made from each type of flour is practically identical . . . note comparative height of 6 biscuits. Note, too the striking difference in weight per biscuit.

Yes, comparative bakes certainly prove that V-90 is different!

VICTOR CHEMICAL WORKS

141 W. Jackson Blvd. Chicago 4, Ill.

New York, N. Y. • Kansas City, Mo. • St. Louis, Mo. • Nashville, Tenn. Greensboro, N. C.

Plants: Nashville, Tenn. • Mt. Pleasant, Tenn. • Chicago Heights, Ill.

from hulled oats (groats). The old process used to about 1892 was called the three-hulling system. Oats went through the first, second and third hullers. There were no groat graders such as the Paddy machines, Carter disc graders or Oliver graders. Separation was made on a table-like cabinet made up of triangular blocks forming channels a few inches wide. Hulled and unhulled oats were fed into the channels and a horizontal motion moved them against the blocks. Hulled oats traveled downward and unhulled oats traveled upward. This principle was first used in a machine invented by a German oat miller named Schulle. American companies improved on the machine by putting it in better balance and also designed better channels. A good separation can be made on this type of machine if the cabinet is set at the proper angle and the correct speed is used. Some mills make finished groats on the first grading while others use the first machine as a scalper and the second as a finisher. Oat mills have done a lot of experimenting in the past few years in an attempt to find a better way to grade out hulled oats. Paddy machines and other graders will not make a complete separation. Returns from groat graders always have a lot of good hulled oats (groats) in them and while unhulled oats in returns are small in percentage, all of it usually goes to the second huller for rehulling and by closer hulling the ends of good hulled oats are taken off in order to hull the shorter oats.

Some mills use the Carter Disc Separator to grade returns. Good results can be obtained if the correct size pockets in the discs are used. Other graders used include the Oliver grader and the apron grader. Dust from reels, oat hulls and dust and chaff from the cleaning house are ground in an attrition mill and sold as oatfeed.

Much of the oat hulls produced today goes into the production of furfural, a chemical for which there is a heavy demand.

Hulled oats or groats, after being milled, graded and polished, are ready to be flaked into rolled oats. This is done on smooth flaking rolls.

Groats are steamed before going to the rolls. Many different types of steamers are used. Most of them are "homemade."

A pair of 9-in. by 30-in. rolls will flake from 28,000 to 30,000 lbs of groats in 24 hours. Most of the mills flake out large groats for their leading brands of packaged rolled oats. The smaller groats are flaked for bulk oats or what are called competitive brands.

STEEL-CUT OATS A FORERUNNER

While four out of five housewives probably refer to rolled oats as "oatmeal," the real oatmeal was a forerunner of rolled oats. Seventy-five years ago rolled oats were almost unknown. Steel-cut oatmeal was the standard commodity and was a great improvement over the rather crudely crushed and ground groats. As the cook stove supplanted the fireplace for the preparation of food, makers of oatmeal wanted to improve their product so that it would cook faster on the stove. A cutting machine was invented to cut groats into cubes of different sizes. By grading on sieves, three standard grades were produced. The grade A meal was about like granulated corn meal in size and grade B was the size of small corn grits. Grade C, or pinhead oatmeal, was the size of larger corn grits.

The cutting machine consisted principally of a steel plate 3/16-in. thick with round holes 9/64-in. in diameter drilled in it at close intervals. The tops of the holes were countersunk and put the groats in an upright position. A series of knives arranged under the plate cut the groats. The motion of the machine was similar to that of a cabbage shredder. The device did good work if the knives were kept sharp.

During the transition period from cut to rolled oats, the mills made about 50% rolled oats and 50% steel-cut oats. The European trade preferred cut oats at that time. After 1900, very little steel-cut oatmeal was made for table use. Gasoline and kerosene stoves increased the demand for quick-cooking oats.

About 1918-20, oat mills started to produce quick-cooking or instant oats, which are steamed and flaked steel-cut oats. Today about two thirds of the oats sold for table use are the quick-cooking or "instant" type.

The barrel was the standard package for table oats prior to 1885. Grocers sold oatmeal by bulk only. Steel-cut oats pack in barrels easily but rolled oat flakes are much more bulky. At the time rolled oats were first produced, the oat millers naturally adopted the same size barrel as was used for wheat flour since it was a standard size among all cooperage companies. Because of the bulkiness, only 180 lbs could be forced into a barrel, thus that weight was the standard for a barrel of oats. Mills gradually started to pack rolled oats in burlap, jute and cotton bags in weights of 100, 90, 45, and 22½ lbs.

STACK EM UP
YOU DON'T GET LOADSHIFTING
WITH CLOTH BAGS!

Slugger McTruck knows that whether shippers are loading railroad cars, trucks, boats or just wheelbarrows, the entire cargo may be damaged or lost if shifting occurs.

And that is one reason why he likes to ship in cloth bags. The firm, no-slip surfaces of woven fabrics grip each other with thousands of tiny claws—and loads stay in place.

There is no time to take chances. Stay with proved, durable cloth bags.

FREE PAMPHLET
Bag Conservation is a Wartime Must. Send for Free Pamphlet giving suggestions on proper filling, closing and handling of Cloth Bags.

IT PAYS TO USE
CLOTH BAGS

Textile Bag Manufacturers Association
100 NORTH LA SALLE ST., CHICAGO, ILL.

THE FIRST WORD NATURALLY!

WHETHER you use ingredients or mixtures, the name Merck is the first thought, *naturally,* in the purchase of vitamins and minerals for flour enrichment.

Because, ever since 1934, when the first of the pure vitamins was synthesized, the name Merck has been the first word in the synthesis, development, and large-scale production of these vitally important substances.

Thus, when our Government's enrichment program was instituted, the milling industry found in Merck an already established, central, and dependable source of enrichment ingredients.

Backed by thorough experience, extensive resources, and rapidly expanding production facilities, we continue to serve the milling industry in maintaining the justly won status of Enriched White Flour as a permanent addition to the daily diet.

*Merck

FLOUR-ENRICHMENT INGREDIENTS

THIAMINE HYDROCHLORIDE
Synthesized in the Merck Research Laboratories, 1936.

RIBOFLAVIN
Made available by Merck & Co., Inc. in 1938.

NIACIN
Made available by Merck & Co., Inc. in 1938.

IRON
Iron by Hydrogen (Reduced Iron)—one of the most assimilable forms of iron. A special form has been made available by Merck for flour enrichment.

*Merck

FLOUR-ENRICHMENT MIXTURES

Write for details on the several precision-controlled mixtures which offer important operating advantages in continuous feeding or batch-mixing. Smooth and free-flowing, Merck Flour-Enrichment Mixtures provide all desirable characteristics needed to meet the miller's practical needs. Available in single and double strength.

Our scientific staff and laboratories are prepared to serve you.

MERCK & CO., Inc. *Manufacturing Chemists* RAHWAY, N. J.

New York, N. Y. • Philadelphia, Pa. • St. Louis, Mo. • Elkton, Va. • Chicago, Ill. • Los Angeles, Cal.

In Canada: MERCK & CO., Ltd., Montreal and Toronto

Much was packed in 5-lb paper bags, usually shipped from the mill 20 to a burlap covered bale.

Some oat mills packed rolled oats and some steel-cut oats in small square packages as far back as 1886. At that time the mills did not have automatic scales, carton sealers or labeling machines. Filling, weighing, sealing and labeling were all done by hand. Plain cardboard shells were used. Packing and labeling were very slow and a printed carton was adopted to eliminate the labeling operation. Soon weighing and packing machines, carton sealers, etc., were invented and kept pace with the increasing demand for rolled oats.

Square cartons were not always sealed to satisfaction. Rolled oats did not stay fresh long in poorly sealed cartons and about 1906 sales of rolled oats began to fall off. At that time, the writer thought that if a better package was used for rolled oats, it would stop many complaints and more oats would be marketed. Our mill purchased a number of round paper cartons which were lined on the inside with a thin film of paraffin. The label sealed both top and bottom caps to the body of the carton. This package proved to be very popular and soon other mills adopted the round carton.

Many improvements have been made in the packaging of oatmeal and today the automatic machines which pack, weigh, seal and label the cartons are used by practically all oat mills as well as by manufacturers of other food products.

ROLL GRINDING
and CORRUGATING
Also NEW ROLLS for Sale
TWIN CITY MACHINE CO.
Minneapolis, Minn.

Dust DAY Control
Complete Dust Control Systems—Just one phase of our work.
THE DAY COMPANY
822 3d Ave. N.E., Minneapolis 13, Minn.

Sassafras Bread

DOWN in Greene County, Virginia, when some of the boys get to talking they are just as likely as not to mention Shifflette's Sassafras Bread. You would think, from the sound of it, it was something figured out in a big bakery or as one of the health flour recipes that get mentioned on radio programs. It wasn't.

Oban Shifflette is a Greene County farmer who began raising sassafras wheat because he couldn't help it. Sassafras bread, as famous as it is getting to be, is really an accident. Greene county is a part of what has been known for hundreds of years as "Virginia's sassafras territory." Oban Shifflette moved there 20 years ago.

"When I began raising sassafras wheat," Mr. Shifflette admitted recently, "I didn't know what I was doing. Until 1924 or thereabouts I never heard of sassafras biscuits or sassafras rolls." It was in the fall of 1924 that a 10-acre field Shifflette cleared turned out to be full of sassafras bushes. The clearing job was not too good. Next spring, when the wheat the farmer planted began to appear, hundreds of thousands of sassafras sprouts appeared also. Oban and his three boys, Tim, John and Joe, worked hard trying to pull out the sprouts. But after two weeks, the field was just the way it had been before. When July came, the Shifflettes decided to cut the wheat and sassafras together and let it go at that. The threshing machine became clogged up every half hour or so and had to be cleared. The wheat had to be hauled over to the adjoining county of Madison, where the Weaver mill is worked by the Robinson River. At the mill, it went through two fanning processes to separate the grain from sassafras leaves and twigs. Then the grinding began. The result was a tangy flour with a distinct sassafras taste that produced delightfully flaky biscuits, rolls, or bread. Oban got excited and started telling people he had the best bread in the land, a bread easily digested, a bread that might even be a blood tonic. His friends, a little skeptical at first, borrowed some of the flour and came back with similar enthusiasm. Greene county doesn't run to commercial minds. Nobody has ever called up any city bakery firm to tell them about sassafras bread. But a lot of farmers have followed Oban Shifflette's example. They set apart a little field, perhaps 10 or 20 acres, then mix some sassafras with the wheat seed. But no matter who raises it, Virginia people talk it up as "Shifflette's Sassafras Bread."—*Pathfinder.*

—BREAD IS THE STAFF OF LIFE—

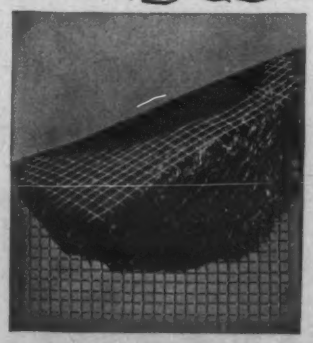
THE FIRST MIDDLINGS PURIFIER

Long before the advent of either the roller mill or the middlings purifier, millers learned that they could produce cleaner flour by breaking it gradually on stones and regrinding the resultant coarse meals. Soft wheats treated in this way responded very favorably, the reason being that the tough bran and the mealy endosperms combined to make flouring without great bran comminution comparatively easy. With hard wheats it was different, and the millers of Hungary, in particular, began to practice purification in connection with high grinding before any machine for the purpose came into being. Kozmin relates that one Ignatz Paur began to purify the middlings of hard wheat with a hand bellows early in the 19th century and constructed an apparatus about 1810.

—BREAD IS THE STAFF OF LIFE—

Scientists estimate that plant diseases annually are responsible for as much loss in agricultural revenue as is caused by the ravages of insect pests.

★ The Essmueller Co. ★
ST. LOUIS, MO. KANSAS CITY, MO.

SNOW TIME IS NO TIME FOR REPAIRS
Your Roofs and Platforms Need Attention Now!
Repairs Can't Be Made Properly or Economically When Everything's Under Snow—No Matter How Urgent.
Weatherproof Permanently With
STONHARD PLASTIC ROOF RESURFACER
STONHARD LIQUID ROOF RESURFACER
STONHARD FLOOR RESURFACER
No Heating or Involved Preparation Necessary!
All Stonhard Materials Can Be Applied By Your Own Handyman

STONHARD PLASTIC ROOF RESURFACER assures lasting pliability—sample at left was exposed to all kinds of weather for 18 months and still lost no elasticity.
STONHARD LIQUID ROOF RESURFACER gives new life and weather-resistance to old, worn-out roofs. Will not crack, check or peel and prevents actual disintegration. Fills surface pores.
STONHARD RESURFACER provides fire-resistant, spark-proof surface for floors, ramps, driveways, platforms, sidewalks, steps and runways.
30 MAINTENANCE PRODUCTS
INDUSTRIES FROM COAST TO COAST KNOW STONHARD
STONHARD COMPANY
881 Terminal Commerce Bldg. PHILADELPHIA 8, PA.
Sales Offices and Stocks in Principal Cities

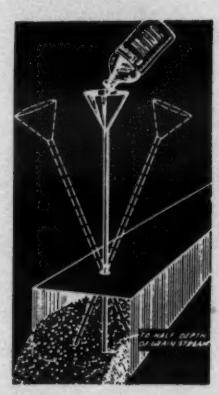
Easy AND Effective WAYS

TO CONTROL PESTS IN GRAIN

Clean Grain is the first step to Clean Flour. Fumigate all infested grain as it enters the mill and you'll halt a world of trouble before it has a chance to start. Treat grain as it is received or in turning:

The LARVACIDE Funnel Pipe, easily made up in a few minutes, delivers LARVACIDE below surface of grain stream.

COST OF TREATING GRAIN with LARVACIDE is only $1.50 —1.70 per thousand bushels, in closed concrete bins. Grain stored in shallow bins which cannot be turned, should be treated with LARVACIDE 15-MIX.



Larvacide is toxic to all granary and mill insects and kill includes rodents for good measure. Rats are driven out of retreats, to die on the open floor where most carcasses are easily disposed of.

FURTHER MEASURES for Good Pest Control include: MACHINERY TREATMENT • SPOT MACHINERY TREATMENTS • GENERAL MILL FUMIGATION and VAULT TREATMENT of returned sacks and small infested lots and samples.

OUTGOING BOX CARS should be sprayed with a pint to either end, to protect your clean flour in transit. Write for instructions and car warning signs.

With a record of more than 19 years of excellent, economical pest control, LARVACIDE destroys egglife and larvae, necessary if you don't want to see the trouble start up again very soon. LARVACIDE warns of its presence, cutting accident risk, entails no fire or explosion hazard, is stocked in major cities, quickly available and comes conveniently packaged in cylinders 25, 50, 100 and 180 lbs. and 1 lb. Dispenser Bottles, each in safety can, 12 to wooden case. Write for literature on Better Pest Control.

INNIS, SPEIDEN & COMPANY, 117 LIBERTY ST., NEW YORK 6
BOSTON • CHICAGO • CINCINNATI • CLEVELAND • OMAHA • PHILADELPHIA
Canadian Distributors: STRONG, SCOTT MFG. CO. Ltd. TORONTO • WINNIPEG • CALGARY

FULL STRENGTH MALTED WHEAT FLOUR

THE STANDARD OF QUALITY FOR THE MILLING INDUSTRY

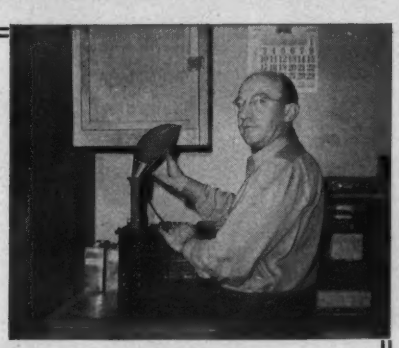
Bakers are learning more and more about the need for accurate malting values in the flours they use.

This year their baking is particularly sensitive to the new crop flour's malting properties.

The full strength, uniform malted wheat flour from our plant and laboratory will give your bakery flour the consistent performance the modern baker demands.

The Kansas Milling Company
WICHITA KANSAS

"Wouldn't Take $500 for my Steinlite"



. . . reports C. R. Rosling, Mgr. of Badger Coop. Co., Badger, Iowa; . . . "unless I could get another one quickly. I've used my Steinlite electronic moisture tester on all grains for over a year, with splendid results."

The success of the Steinlite lies in the fact that it is FAST, ACCURATE and EASY to USE. It is portable, neat and compact. It is durable—made of the very best materials, and built to last. It operates on the radio frequency impedance principle and is calibrated against the official oven methods.

— SEEDBURO —
"HEADQUARTERS" for Grain and Seed House Supplies

"Headquarters" for grain and seed house supplies and equipment has been the term applied to Seedburo for a long time—and rightly so—because the Seedburo line includes over 350 items of scales, grain probes, germinators, dockage sieves, bag trucks, blowers, etc.—all made of the finest material available—rigidly inspected. Write for Free Catalog No. 144.

SEEDBURO EQUIPMENT COMPANY
Nationally Seed Trade Reporting Bureau · Founded 1915
630 BROOKS BLDG. CHICAGO 6, ILL.

DUST IS DYNAMITE!

IT MUST BE HANDLED WITH CARE

DUST CAN BE CONTROLLED. ENGINEERING SERVICE IS A PART OF MILL MUTUAL INSURANCE AND OUR DUST CONTROL BULLETINS AND ENGINEERING DATA ARE OFFERED WITHOUT OBLIGATION TO THE MILLING AND GRAIN TRADE.

MILL MUTUAL FIRE PREVENTION BUREAU
400 W. MADISON STREET
CHICAGO, ILLINOIS

Cleaning Wheat for Milling

By Louis H. Gibson

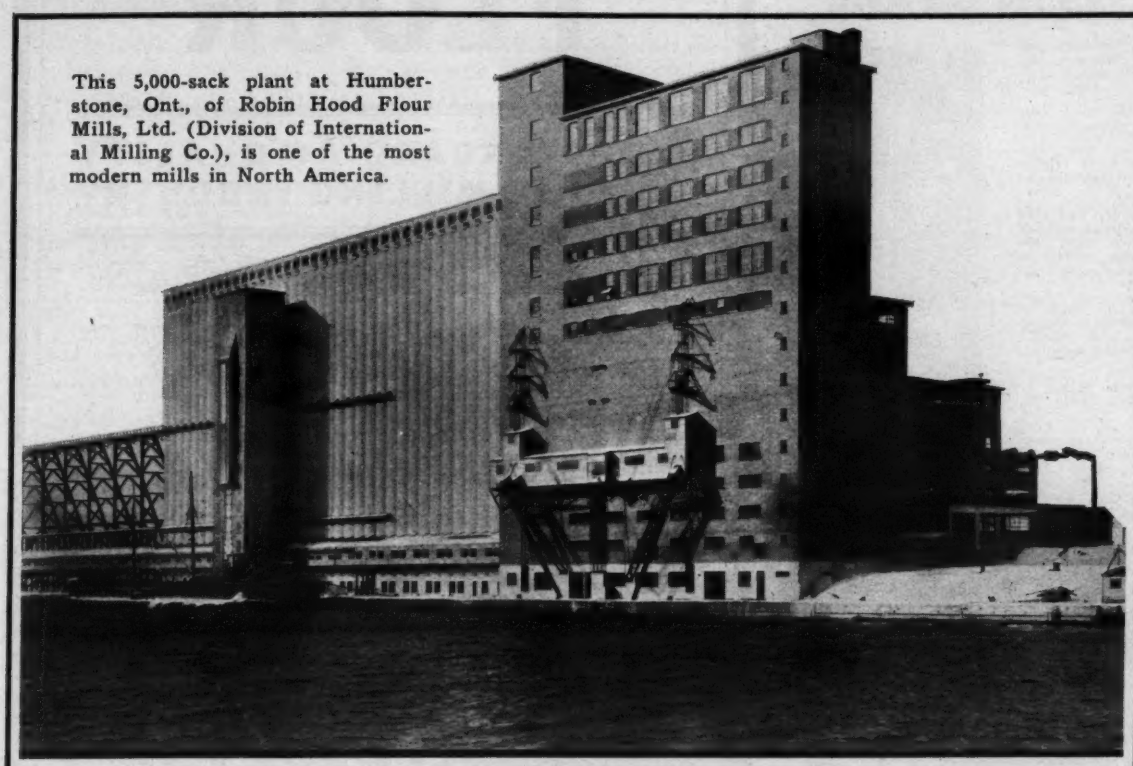
IN general terms the cleaning of wheat consists in the removal of all foreign material from the mass of grain, and the fiber and fuzzy exterior from the grain itself. The foreign impurities are the dust, sand, chaff and straw. Then there are numerous seeds—wild onions, oats, corn and other foreign grain and seeds, as well as blasted kernels of wheat and rust, and ergot (smut). In some parts of the country there is trouble from small bits of clay getting mixed with the wheat. There are always pieces of metal, such as nails, screws, wire, etc.

The principles involved in the separation of these impurities and foreign substances from the wheat are those used in taking advantage of the differences in form, size and specific gravity or magnetic affinity of the various impurities. The distinction as to form is taken advantage of by passing the whole body of material, grain and impurities alike, over a screen, the wheat itself going through openings which are adapted to its form. Particles of straw, sticks, chaff, oats, etc., are separated from the wheat by taking advantage of their elongated form. The wheat grains go through the screen openings, which are abundantly large for their passage, but, as the screen is inclined, each berry must be tipped forward in order to enter the hole. Each hole is of such diameter that when the wheat grain, sliding forward, carries its center of gravity beyond the support of the upper edge of the hole, it drops through. The oat grain, or other similarly formed substances, being longer than the wheat grain, will, for this reason, extend over the lower margin of the hole before the weight of the lower end is sufficient to cause it to dip and fall through. Thus it passes over the end of the screen and goes off with the impurities.

Cockle and other round seeds which are of the same size as the wheat are also separated from the bulk of the grain, on account of the distinction as to form.

One of the earliest devices for separating these round seeds was the arrangement of a cone over a cylindrical hopper, the former being slightly smaller than the latter. The wheat was discharged at the point or upper part of the cone. The elongated wheat grains would slide to the bottom of and into the hopper with somewhat less velocity than the round seeds. These round grains, however, would slide down the cone with much greater velocity than the wheat and leap over the opening between the cone and hopper. This machine is not now in use, however. Another device consists of a cylinder of partially perforated or indented metal. This cylinder is kept in slow revolution. Within the cylinder is the trough, which is given a slow, shaking motion, and is inclined at an angle of about 10 degrees. The indentations in the outer cylinder are of such a depth as to allow the small seeds to rest in them until the cylinder has revolved sufficiently to allow the small seeds to fall back, not into the cylinder itself, but into the rotating trough within, the movement and slant of which is sufficient to conduct these impurities into a separate spout of the screen. The form of the wheat berry does not allow it to imbed itself in the perforations or indentations of the cylinder sufficiently to carry it so as to fall into this trough.

The separation as to the size of the



This 5,000-sack plant at Humberstone, Ont., of Robin Hood Flour Mills, Ltd. (Division of International Milling Co.), is one of the most modern mills in North America.

This is one of the many properties of the International Milling Co. being protected by our appraisals.

Appraisal Service Company
INCORPORATED
Minneapolis Minnesota
APPRAISERS TO THE MILLING AND GRAIN TRADE

JONES-HETTELSATER CONSTRUCTION CO.
Designers and Builders for Milling Companies
1012 Baltimore Ave. KANSAS CITY 6, MISSOURI

MILL COGS
We make ALL kinds. Specialize in "Ready Dressed" cogs which are READY TO RUN the moment driven and keyed. Write for circular "DW" and instruction sheets free.
The N. P. Bowsher Co., South Bend, Ind.

Fulton's Superior Printing and Design Increase the Value of the Excellent Display Space on the Surface of Your Bags.
In Addition to Standard Containers We Offer Premium Packages with Sales Appeal.

FULTON BAG & COTTON MILLS
Manufacturers Since 1870
Atlanta St. Louis Dallas Minneapolis New York New Orleans Kansas City, Kans.

This is Your Supreme Court!

The gentleman in shirt sleeves on the left is the judge. On the right, the housewife represents the millions who comprise the most critical jury ever assembled—*your* customers. Your products are on trial. And only pure, clean foodstuffs receive a verdict of "not guilty." All others are condemned and banished to oblivion.

Fortunately, the need to safeguard the nation's food supply from the ever-present menace of insects and vermin is recognized by food handlers and processors. Many of the largest and most progressive among them have found Liquid HCN as the surest, most economical way to control insect infestation and to prevent product contamination.

Liquid HCN (hydrocyanic acid gas in concentrated form) penetrates all cracks and crevices, and kills vermin and insects in all stages of their life cycle. Several methods of fumigation have been perfected and all can be applied with minimum interruption of production.

A qualified Industrial Fumigation Engineer, with all necessary equipment and trained personnel, will plan and execute the job of fumigating your mill, plant or warehouse. Write or wire us for the name of an experienced Fumigation Engineer in your territory. He may be consulted without obligation, on any insect or vermin control problem.

LIQUID HCN FUMIGATION
IS
EFFICIENT · ECONOMICAL
CLEAN · TIME-SAVING

One of several standard methods of application will give positive insect control at minimum cost in meeting your needs. Send for a copy of "The Liquid HCN Fumigation Manual."

AMERICAN CYANAMID & CHEMICAL CORPORATION

INSECTICIDE DEPARTMENT · A UNIT OF AMERICAN CYANAMID COMPANY
32-C Rockefeller Plaza, New York 20, N. Y. - Kansas City 6, Mo. - Azusa, Calif.

impurities is made by passing the grain over perforated screens, which allow the impurities that are larger than the wheat to pass over the end of the screen and the wheat to pass through the openings. From thence the wheat passes to other screens, with openings smaller than the wheat itself and through which the smaller impurities pass.

The separation on account of the specific gravity may be best described by considering that specific gravity is the ratio of weight of bodies of equal volume to one another when taken in connection with a standard. Bits of chaff, straw and dust are of less specific gravity than wheat; that is, the same volume of such articles weighs less than the wheat itself. The separation on account of specific gravity is made by passing the entire volume of wheat through currents of air adjusted so as to remove all particles of less specific gravity than the wheat itself. Aside from the dust and chaff, various seeds and impurities, which are of the same form and size, though of different weight from the wheat, are removed.

To consider the wheat cleaning operations in more practical form, we may say that there is no reason why a certain amount of dust should not be taken out of the wheat as it is unloaded, and before it is weighed. It could make no appreciable difference in the weight, but it would make an appreciable difference, not alone to those who have to do with the weighing, but with the subsequent cleaning as well. Weigh hoppers and their surroundings are for the most part disgustingly dusty and dirty. More than one man has sacrificed his life by working in this part of the mill. If the weigh hopper be in the hopper, as is usual, a great deal of the dust could be taken out by merely placing a hooded suction opening over the chute. A more elaborate way would be to close the top of the chute near the mouth in such a way as to get the full benefit of the suction. This same arrangement is applicable to mill hoppers placed at the top of the building.

Following the wheat from the weigh hopper, it may be said that it would be well to remove dust therefrom at every stage in its course possible, by suction attachments under the weigh hopper connecting with the spout which leads from it, and, in case of the weigh hopper being below, so that the wheat has to be elevated before being discharged into the bins, nothing better can be done than to make a suction attachment at the foot and particularly at the head of the elevator. All of this can be inexpensively done, and at the same time that it removes the dust from the wheat, it keeps the obnoxious material out of the mill.

It is highly important that arrangements be made to weigh wheat after as well as before it is cleaned. Such an arrangement indicates the exact loss in cleaning and tells the story if there be anything unusual. A weighing apparatus which makes it possible to weigh each day's supply of wheat separately, enables the miller to take a yield every day, than which there is nothing more satisfactory.

After the weighing of the wheat, it might be passed over a rolling screen, on its way to other cleaning machinery. The rolling screen is one of the best pieces of machinery which was ever put into a mill, but of late years it has been sadly neglected. It went out of use as the new process came in; it died because of its earlier associations. It takes up a great deal of room—is not very pretty to look at—but it is a fairly good separator, and somewhat of a scourer at the same time. With a suction fan attachment, all of the dust in the wheat can be taken out. The separations are made, as is known, by the size of the meshes of the cloth, the screenings and small seeds going through the head cloth, the wheat through a coarse wire cloth at the tail, and the straws and larger foreign material over the tail. The scouring influence spoken of is caused in the passage of the wheat through the reel by the friction of the wire. This scouring on the rolling screen must not be underestimated. It is not sufficient, however, but is just the kind of scouring which will not injure the bran, nor mutilate or waste the wheat. If it did not involve so long continued an operation, this method of scouring would be an ideal process. As to the taking out of the dust, we all know that this is simple enough. A strong current of air through the reel, preferably from the tail, will do the work.

A rolling screen with a most excellent scouring action may be made by using a wire cloth made with square wire rather than round. The edges of the wire present a most excellent scouring surface, the severity of which could be regulated by the speed of the reel as well as by the arrangement of the ribs or lifting surfaces on the inside. By reducing the effectiveness of the latter, the amount of scouring action might be largely reduced, and by lessening the speed, the scouring action would also be diminished. The general principle of the construc-

STEADY

your enrichment levels

WITH

VEXTRAM

RED. U. S. PAT. OFF.

WINTHROP'S BRAND OF FLOUR-ENRICHMENT MIXTURE

PATENT APPLIED FOR

UP-and-DOWN flour-enrichment is costly, wasteful, dangerous. In the long run, *adequate* enrichment is always safer and cheaper. So stabilize *your* flour by enriching with "VEXTRAM". Used as recommended, this one all-purpose mixture enriches *any* flour safely above required levels, despite natural vitamin-mineral variations of wheat. Its starch carriers* make it free-flowing, assure easier sifting and keep ash additions at a minimum. Supplied *single* strength with iron by hydrogen or sodium iron pyrophosphate, as you prefer—or *double* strength with iron by hydrogen.

Write now for price schedules and table of directions for use. For special information, consult our Technical Sales Service.

*Combination of carriers, developed and first used by Winthrop Chemical Company, Inc.

WINTHROP

ARMY E NAVY

Address Inquiries to

Special Markets Division

WINTHROP CHEMICAL COMPANY, INC.

170 Varick Street, New York 13, N. Y.

STOCKED FOR QUICK DELIVERY AT NEW YORK, CHICAGO, KANSAS CITY (MO.), DENVER, LOS ANGELES, SAN FRANCISCO, PORTLAND (ORE.), DALLAS AND ATLANTA

tion of rolling screens is understood, and, for that reason, it is hardly necessary to enter into a detailed mechanical description.

The following is from a correspondent regarding this screen, and is submitted for general consideration: "Its utility or adaptability can be nothing more than speculative, as the experiment, as far as the writer knows, has never been tried. The suggestion was to have a reel into which the grain might be spouted and which would revolve for some minutes in it; that is, the supply of wheat would be run into it and then cut off, while the reel would revolve with this wheat in it for any desired period. This feature would be somewhat similar to the manner of operating a hominy mill; it would be charged with grain, and after it had been in the reel long enough, it would be discharged. It would have to be arranged so that the reel would be level while the grain was in it, and pitched at a time when a discharge was desirable. Again, it was suggested that there might be automatic arrangements for supplying the reel with the proper quantity of grain."

It is easy to see that the grain, when run into a reel clothed with wire and retained there for a time while it was in motion, would be well scoured. There would be the friction of the grain against itself and against the wire and ribs, which operation would not be so severe as to, in any way, disturb the bran coating. In fact, the severity of this operation might be regulated in many ways. We know that there are means of reducing grain by attrition, by the force with which it is propelled against any hard surface. This is the extreme of a movement of this kind. Again, we know that the grain might be put into a reel with a smooth inside surface which revolves slowly, and which would have very little effect upon the grain. Here are the two extremes.

The object in charging a reel and allowing the stock to stay in it for a time is to increase the duration of the friction, but not its absolute severity. Smutters and scouring machines, as ordinarily arranged, may be either too severe or not sufficient in their operations. It is desirable, by most millers, that the work of wheat cleaning be done quickly, without great expense in money or time. In the effort to make machines of great capacity and apparent efficiency, many of them are too severe. One or two scouring machines, where the wheat merely passes through them, must of necessity act harshly if they appear to scour the wheat; or lightly or inefficiently if they are not severe and yet are hasty in their operation. A miller could scour his wheat as much or as little as he pleased by controlling the length of time that it was in the reel and, at the same time, not injure the bran.

In any cleaning operation a certain proportion of the outer layer of the four layers of the bran coating will be removed. Attached to this bran layer and the next one are the vegetable hairs at one end, and the scale surface over the germ coating at the other. Wheat cannot be said to be properly scoured until both the vegetable hairs and this scaly substance at the other end of the berry are removed. The wheat, after being properly scoured, will show a round end with a crease through the center, instead of the elongated form which was given it by the vegetable hairs. Work of this kind, when done thoroughly, is frequently done at the expense of a large amount of broken wheat and lacerated bran coatings. The less severe methods do little or nothing in a proper way. These latter methods, if repeated, or if they could be made to operate on the wheat during a longer period, would be the most efficient and satisfactory. The method which contemplates the charging of the reel in the way described would necessarily require more machines than the usual way of scouring wheat, but the cost, certainly, would not be proportionately greater, either as to plant or as to the power required in their operation. These machines would probably require more space, though not a great deal more. The operation would not have to be repeated. The miller could arrange to keep the wheat in the reel until it was scoured. Thus there would be only one operation, though there would probably have to be two or three machines to do the work of one, as to capacity as estimated by the amount of stock required in the mill.

EDITOR'S NOTE.—Mr. Gibson, author of the book, "Gradual Reduction Milling," from which this article is reproduced, was regarded as the foremost technical writer of his day. Although nearly 60 years have elapsed since THE NORTHWESTERN MILLER published his renowned volume and times and milling have changed considerably, present-day millers will find that many milling fundamentals which Mr. Gibson recognized and discussed are just as interesting and valuable today as they were in 1885.

To be effective and to avoid early reinfestation, a fumigation, must "get 'em all." And the only way to make sure there are no survivors is to use a fumigant that can penetrate every crack and crevice . . . every package . . . every bit of stock . . . every hiding place.

In this respect—in its remarkable power of penetration—Dow Methyl Bromide is unmatched by any other fumigant. Because of its low absorption factor and high diffusion rate, Methyl Bromide penetrates quickly. It reaches the center of 140 lb. bags of flour stored in large stacks . . . it even goes to the interior of tomatoes and other vegetables. You get complete penetration with Methyl Bromide fumigation.

And wherever Methyl Bromide penetrates, it effects a complete kill of a wide variety of insects in all stages of development, including the egg stage.

Despite its effectiveness—despite its ability to penetrate and "get 'em all," Methyl Bromide is harmless to most foodstuffs.

For complete information or the name of a competent industrial fumigator specializing in food fumigations, write Dow.

THE DOW CHEMICAL COMPANY
MIDLAND, MICHIGAN

New York • Boston • Philadelphia • Washington • Cleveland • Chicago • Detroit
St. Louis • Houston • San Francisco • Los Angeles • Seattle

If you don't get penetration -you don't get fumigation

BOX CAR

Methyl Bromide is better suited than any other material for this application. Penetration and rapid venting assure a quick, thorough job. It is easily applied from outside with a special, economical applicator.

TARPAULIN

Used with a specially developed, plastic-treated tarpaulin, Methyl Bromide makes possible thorough "on the spot" fumigations with minimum equipment.

MILL AND WAREHOUSE

Methyl Bromide does a complete job—requires a minimum of equipment—eliminates pre-cleanup. Its penetration reaches every part of the building.

FUMIGATION CHAMBER

With Methyl Bromide—penetration brings positive and quick kill in fumigation chamber with no need for expensive and complex vacuum equipmen.

METHYL BROMIDE

the penetrating fumigant

Other Dow Fumigants include: CHLOROPICRIN, CARBON TETRACHLORIDE, ETHYLENE DICHLORIDE, PROPYLENE DICHLORIDE AND CARBON BISULPHIDE.

DOW

CHEMICALS INDISPENSABLE TO INDUSTRY AND VICTORY

EXTINCTION OF SOKE—THE ANCIENT FLOUR MILLING MONOPOLY

UP to within the eighteenth century, numerous soke mills existed throughout England whose rights and privileges were merely illusory, soke mills only in name, with rights believed to be dormant, but virtually being dead. The existence of such mills was demonstrated in 1859 with respect to the mills of Rossendale forest, Lancashire.

This ancient royal mill, possessing the soke of the district, was confirmed in its rights in 1638, and again in 1785, by a "decree for settling the quantity of toll to be paid by the inhabitants of Rossendale for grinding at the king's mills in the forest of Rossendale."

About 1855, during the fast declining years of soke custom throughout the kingdom, Rossendale mill, like others, theoretically still possessed compulsory powers. But as a matter of fact it was found impracticable and undesirable to enforce them. When in 1859 the mill was offered for sale as usual with all soke rights and privileges, it was questioned whether it had any at all upon which a value could be set.

William Sutcliffe, of Bacup and Rawtenstall mills, in negotiation for the property with the owners of the mill, decided to test the question. Throughout the entire Rossendale soke district a notice was posted reciting the decree of 1638 and its confirmation, giving warning that John Brooks of Sunnyside, and S. A. Lord of Newchurch, owners of the mill, were firmly determined to enforce the same, and offering a reward of £5 to any person giving such evidence of refusal to attend as would be considered sufficient to ground an action or proceed upon.

The notice was received with amazement by the majority of the residents and amusement by a few. No evidence was given and no action taken; and the soke of the mill was thus found to have utterly passed away.

No such illusory assets were conferred in the purchase of the mills now to be noted, by communities bound to them, and unable, even in the present generation, otherwise to shake off liabilities long surviving even the feudalism that created them.

At Leeds and Wakefield the entire sokes were purchased by money raised by public rates. At Bradford the burgesses twice unsuccessfully attempted to do the same, and eventually a portion only of the soke was purchased. At Manchester a portion of the soke was abandoned by the feoffees of the Grammar school, who owned it, and the remainder extinguished by sale to a railway company.

At Leeds, till the year 1839, the soke of the town and district was held by the ancient king's mills, the "two water corn mills under one roof," granted in 1609 by James I to Ferrers and Philips and in 1631 by Charles I to E. and W. Ferrers at a fee-farm rent of £13 8s 8d. The history of these mills, both before and after the date of this grant, abounds with actions at law respecting soke.

The rights enjoyed by the mills were identical with, and in the local act are set out precisely as, those of Wakefield. They may be found formally claimed on behalf of Queen Elizabeth in a commission issued in 1574 to the steward of the manor of Leeds to amerce tenants "for withdrawing their suit from the queen's mills there." The only exemptions from the soke there were residents upon ancient Templar estates, some of these properties being still marked, in sign of their freedom from soke, with the Templar's cross.

In 1838, Edward Hudson, corn merchant and miller, was owner, the occupiers being Messrs. Dyson and Jackson. On Oct. 30, in that year, a public meeting, requisitioned by the mayor, was held at the courthouse, Leeds, at which it was resolved to be "desirable to extinguish by a fair compromise the claims of the said Edward Hudson to the soke, suit, and service alleged to belong of right to him as owner of the mills."

The sum asked by Hudson for the abandonment of his compulsory rights was £13,000; and an act being obtained May 14, 1839, the transaction was completed for this amount.

Various suits then pending were abandoned and the reserved fee-farm rent redeemed, while trustees were empowered to raise the compensation money on security of a rate levied upon all property owners in the soke district. No landed property whatever was acquired by the rate payers, the mills entirely remaining the estate of Hudson.

Various mills existed on the royal manor of Wakefield, Yorkshire, part of the Duchy of Lancaster; those of War-

THE PART OF THE MILLING AND BAKING INDUSTRIES IN THE WAR EFFORT

It has been stated that one of the main causes of the internal collapse of Germany in World War I was a deficiency in essential Vitamins in the diet of the general population. Recognizing this, one of the first concerns of our government has been to insure that no such lack occurs not only in the diet of our armed forces, but also in that of those on the home front. The enriched flour and bread program has been a direct result of this policy.

It is greatly to the credit of the milling and baking industries that they cooperated voluntarily and immediately in this program and in fact were enriching their products with vitamins and minerals even before the adoption of the idea by any official agency. This wholehearted cooperation has continued and as a result our people are the best fed of any on earth.

The role of the manufacturers of the synthetic vitamins in insuring the success of the program by providing ample supplies of these essentials must not be overlooked.

We are proud to state that we have exerted every effort towards the production of our synthetic vitamins and today can offer Thiamin Hydrochloride and Riboflavin in adequate amounts for this highly essential use.

Chas. Pfizer & Co., Inc., 81 Maiden Lane, New York 7, or 444 W. Grand Avenue, Chicago, Illinois.

PFIZER QUALITY

Chemicals For Those Who Serve Man's Well-Being

MANUFACTURING CHEMISTS · ESTABLISHED 1849

LABORATORY SERVICE

Exclusively a Cereal Consulting and Control Laboratory for the Flour, Feed and Grain Industries.

ST. JOSEPH TESTING LABORATORIES, Inc.
Corby Bldg. St. Joseph, Mo.

ley, Sowerby and Holmfrith, all water-mills, being granted to Ferrers and Philips by James I in 1610, confirmed to E. and W. Ferrers by Charles I in 1636, and subsequently passing out of the range of the present account. The royal soke of Wakefield, with the adjoining hamlets of Horbury and Sandal Magna, was held by the water-mills at these several places.

These three establishments, with the soke, were granted in fee by James I, a transaction which may be most conveniently proved by the brief abstract of the deed in the Record office: "To Robert Hungate and Henry Foxcroft, 16 March, 1611."

Not till the act passed June 14, 1854, at a total cost of upwards of £21,500, was the emancipation of the people of Wakefield and Ossett-cum-Gawthorpe from milling soke secured.

The case of the purchase of Bradford soke is peculiar. That town was many years in advance of Leeds and Wakefield in endeavoring to purchase and extinguish the soke of the local mills. But at a time when both those purchases had been completed, Bradford had twice resolved to buy the soke, and twice failed to raise the funds, and, in fact, never did so. The uncompleted efforts of the burgesses of Bradford were similar to the perfected undertakings of their neighbors. But they left the soke to be so frittered away as to render the toil and expense of enforcing it unprofitable. At length, part of it was abandoned, and the remainder sold, together with the entire estate, to private speculators.

The Bradford mills were acquired by the great milling speculators, Ferrers and Philips, from James I, in 1612. The grant specified them as two water-mills under one roof in the south part of Bradford, Yorkshire, with the dam, brook, soke, suit, etc., then or late in the possession of Sir Richard Tempest, at a rent of £6 6s 8d.

Also a water-mill of late erected in the eastern part of Bradford, with dam, soke, suit, etc., also in the occupation of Sir R. Tempest, at a rental of 6s 8d. They were granted in soccage as part of the king's manor of Enfield, and were soon disposed of by the Ferrers partnership to Tempest, who was early involved in a contest to enforce the soke.

During the succeeding century they passed through various hands, and apparently the soke was becoming depreciated in value by reason of negligence in prosecuting absentees. Abraham Rawson, leasing the mills 1715-29, found reason to complain to the owner on this score.

This state of affairs was considerably altered by the vigorous enforcement of the soke by successive owners in the Smyth family, the first of whom seems to be John Smyth, who acquired the fee-simple in 1768 and farmed the mills.

At a public meeting in 1839 a committee was appointed to confer with Mr. Smyth as to the price of redemption, the interview resulting in the owner offering to accept £10,000 for his interest in the soke rights, or £2,500 less than his grandfather had asked in 1795.

At a second public meeting a resolution was passed accepting the offer. But the generosity of the town was not equal to the demand, and once more the project fell through; and so far as public money was concerned it never was accomplished.

Thirty years later, Colonel Smyth endeavored to dispose of the soke, together with the entire milling estate. A sale by auction was announced for April 30, 1869, of "the extensive steam and water corn mills called the Queen's mills, situate in the centre of Bradford, now in the occupation of Messrs. J. Ellis and Co." &c., &c; "the soke mill in Manningham," in the occupation of Ellis and Co; and "also the flour and malt sokes, suit, and multure attached to the mill. . . . The soke extends over an area of 2,900 acres, and includes a population of about 60,000 people."

The auctioneer, Mr. Sharp, in describing the property, said "the malt soke was the only one that had been enforced for many years, and was worth in gross about £600 per annum, this being paid by the maltsters and others for the privilege of being allowed to grind malt on their own premises, the total gross income derived from the property being £1,342 per annum.

As to the soke, which he observed had been erroneously described as attached to Manningham mill, he quoted James, the historian of Bradford, to show that there was no means of getting rid of it except by buying it; and said the flour soke, if enforced, "might be made the source of greatly increased receipts."

At this auction, therefore, that portion

HAAKY
GRAIN CLEANING MACHINERY
HAAKY MFG. CO.
509 Vandalia St.
ST. PAUL 4, MINN.

COTTON BAGS BURLAP
Specially Manufactured for
MIXED FEED MANUFACTURERS and FLOUR MILLERS
CENTRAL BAG & BURLAP CO.
IMPORTERS AND MANUFACTURERS
OFFICE AND FACTORY: 4513-4525 SOUTH WESTERN BLVD.
CHICAGO

DIABLEND
Top Quality
Malted Wheat Flour

It is essential that your hard wheat flours bake consistently to your established standards. But improper diastatic treatment can spoil your most careful wheat selection and milling methods.

DIABLEND malted wheat flour assures you of uniform quality and quantity of diastatic action. Selected wheat is malted in our own malt plant under automatically controlled atmospheric conditions. DIABLEND is manufactured to a standard level of maltose, milled so it is free flowing for accurate feeding.

We will provide samples for experimental work in your own laboratory, or you may send to us samples of your untreated flours for analysis. Maltose or gassing power analyses in our laboratory are free to DIABLEND users. Ask for a sample and quotation of DIABLEND today.

B. A. ECKHART MILLING CO.
1300 W. CARROLL
CHICAGO, ILLINOIS

NIAGARA

SMALL DIMENSIONS!

HIGH-SPEED!

HIGH-CAPACITY!

HIGH-EFFICIENCY!

"NIAGARA"— GYRO-WHIP — SIFTER

UNEQUALLED FOR FLOUR AND FEED REDRESSING——

FOR RELIEVING BOLTER SECTIONS, ELIMINATING REELS, HANDLING TAIL STOCKS.

1 TO 4 SECTION UNITS!
2 — 8 SEPARATIONS PER SECTION.

RICHMOND MFG. CO.
LOCKPORT, N. Y.

Flour Exchange The J. K. HOWIE CO. Minneapolis, Minn.
SOLE DISTRIBUTOR IN THE NORTHWEST FOR
GREENING WIRE CLOTH
PROMPT SERVICE and SATISFACTION GUARANTEED

The Exacting, Dependable

Omega Vita-Miser

Saves you vitamin dollars—
Saves you man hours—
Gives you an exact product—
Gives you peace of mind—

Ask for interesting details.

Omega Machine Company
3409 E. 18 St. Kansas City, Mo.

of the soke which had been enforced, the malt soke, comprised almost one half of all sources of revenue derived from the estate, including water rents from the goit or race "studded with mills and manufactories," while the portion which had not been enforced was offered as a profitable investment.

A sale was not effected, however, the property, "with the right of soke in Bradford and Manningham," being withdrawn at £16,000. A few months later the estate, "including the mills with all their rights of soke," was privately sold for £19,000, being £3,000 more than the highest bid for it at auction, to a syndicate, which in 1871 resold partly to a railway company and partly to the corporation, the latter paying £8,300 for public improvements. The ancient rights which had been thus but transmitted as a valuable property from one owner to another at length passed to the corporation.

"By arrangement with the maltsters and brewers within the two miles comprising the soke jurisdiction, the multure rights affecting them, realizing £600 per annum, were commuted," and no attempt was ever made by the corporation to revive the flour soke which Colonel Smyth's auctioneer had declared was a possible "source of greatly increased revenue" that could only be got rid of by purchase.

Thus the last remnant of soke in Bradford disappeared with the purchase by the corporation of the mills in which it was exercised. These in open market would doubtless have been of comparatively small value if worked in competition, but practically they were resolved into a mere matter of sites devoted to town improvements.

——BREAD IS THE STAFF OF LIFE——

Production of grain sorghums in Kansas this fall is expected to be 2½ times as large as the 1943 total and three times as large as the average production for the past 10 years.

Use Weevil-Cide The DEPENDABLE GRAIN FUMIGANT
THE WEEVIL-CIDE COMPANY
1110 HICKORY ST. KANSAS CITY, MO.

A. E. BAXTER ENGINEERING CO.
Designers and Engineers for Mills, Elevators and Feed Mills
344 DELAWARE AVENUE BUFFALO, NEW YORK

POSTWAR planners will find quick and ready answers to their bag problems at M. J. Neahr & Company. For reconversion to peacetime manufacture will constitute no problem with us. We are making—and have been making—the same kind of quality Textile Bags for war needs that will be serving agriculture and industry after the war.

And, you can count on Neahr craftsmanship and know-how, for behind all Neahr bags is 89 years of diversified experience in quality bag manufacture. Neahr bags are noted for their dependability. They give maximum protection at low cost.

Write us today. We'll be glad to discuss your bag problem with you.

DRESS UP YOUR PRODUCT

M. J. NEAHR & COMPANY
1600 SOUTH DEARBORN STREET • CHICAGO
The Chicago Bag Factory Since 1855

FOR SHIPPING FOOD TO OUR FIGHTING FORCES • TEXTILE BAGS ARE BEST

Bags are Vital Weapons

Here's a Book that helps you Conserve them

You know *why* bags must be conserved these days.

But are you sure you—and all of your men who handle bags—know *how* to conserve them in every possible way?

To help you, an invaluable booklet—"How to Conserve Cloth Bags Through Proper Handling"—has been prepared.

IT TELLS HOW...

To order the right bags for your job
To handle bags when you receive them
To hand-close bags
To machine-close bags
To open machine-closed bags
To handle bags after filling
To salvage used bags at a profit

The booklet is factual, concise, quickly read, helpfully illustrated. It may well be the means of your conserving thousands of critically needed bags... and saving money, too. Secure your copy without cost by writing to

Textile Bag Manufacturers Association
100 North LaSalle St., Chicago 2, Illinois

As a Textile Bag Manufacturers Association member, Bemis is proud to be associated with this program to conserve essential bags and thus help the war effort. As a bag-maker, and consequently especially aware of the sore need for bag conservation, we urge your use of this practical booklet.

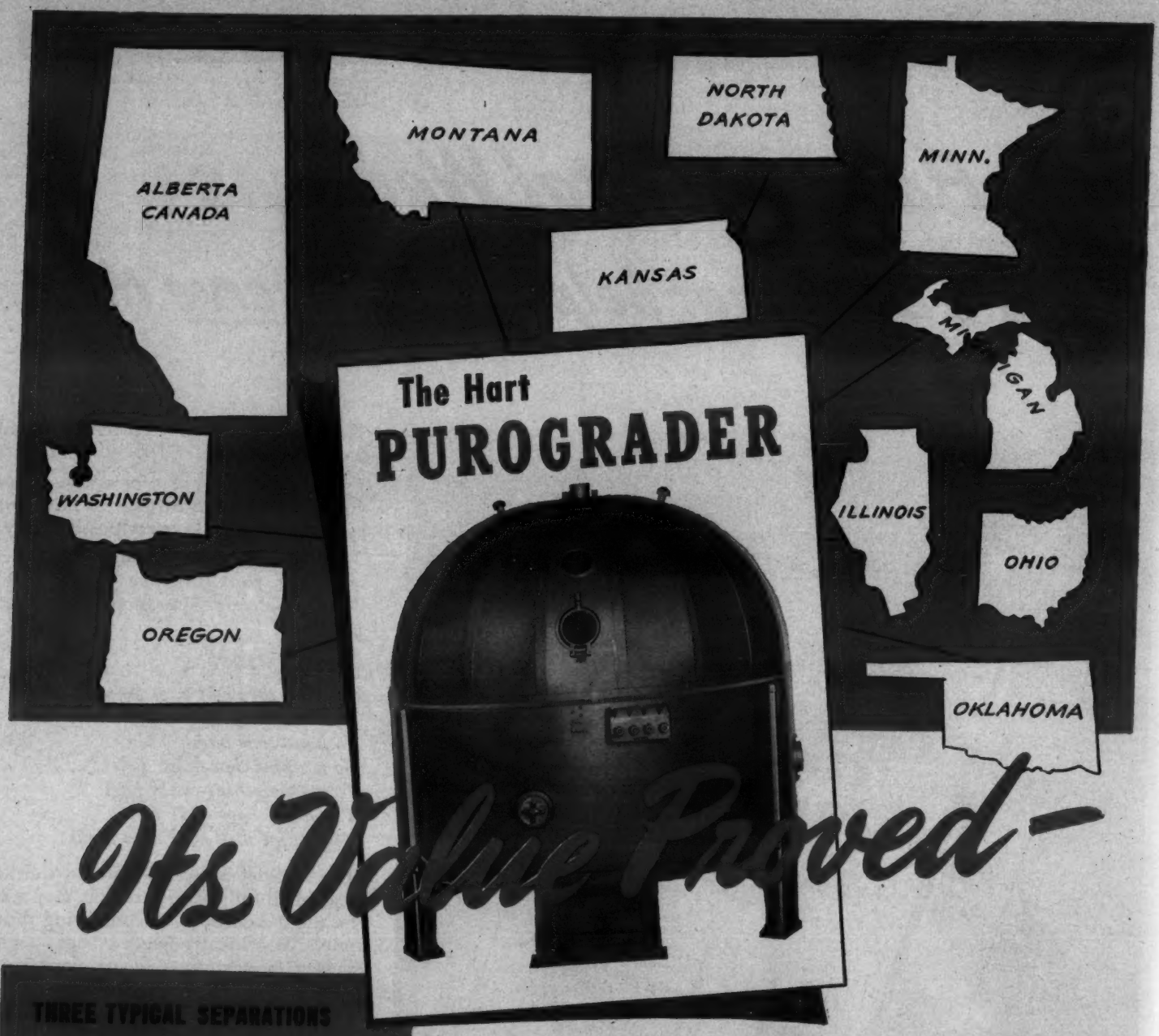
East Pepperell, Mass.

BEMIS BAGS

BEMIS BRO. BAG CO.

OFFICES: Baltimore • Boston • Brooklyn • Buffalo • Charlotte Chicago • Denver • Detroit • East Pepperell • Houston • Indianapolis Kansas City • Los Angeles • Louisville • Memphis • Minneapolis Mobile • New Orleans • New York City • Norfolk • Oklahoma City Omaha • Peoria • St. Helens, Ore. • St. Louis • Salina • Salt Lake City San Francisco • Seattle • Wichita • Wilmington, Calif.

BETTER BAGS SINCE 1858



Its Value Proved—

THREE TYPICAL SEPARATIONS

Large middlings going to coarse sizings roll. Note uniformity of size.

Smaller middlings going to fine sizings roll.

Loose bran. Can be sent directly to feed.

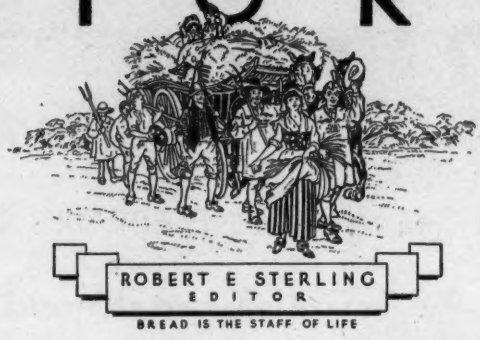
Under All Conditions on All Types of Wheat

From Washington to Ohio—from Canada to Oklahoma—millers who have installed the Hart Purograder have had strikingly similar experiences. They have seen operating costs reduced and they have seen definite evidence of improved quality—better color, better control of ash, greater retention of moisture, longer extraction of high quality patent. Purograder principles, introduced as a "revolutionary development" have now proved themselves in action under varying milling conditions on all types of wheat. Millers who are using Purograders are enthusiastic in their praise. Write today for more facts and figures and for priority information.

HART-CARTER COMPANY

680 19th Avenue, N. E. Minneapolis 13, Minnesota

EDITORIAL



ANTI-TRUST PROSECUTION PATTERN

UNLESS there should be a change in the political complexion of Washington it seems clear that in the immediate postwar period there will be great activity on the anti-trust front. The Department of Justice is getting set for this campaign. In fact its heaviest caliber guns already are firing on the railway target. Its wartime activities have not had a happy issue, particularly in the food field. There it has suffered a series of major defeats, these being due to insufficient personnel in the enforcement division, to popular aversion for anything savoring of legal hamstringing of the war effort, and to the fact that government controls actually have created conditions which the anti-trust laws proscribe. The wartime prosecution slate therefore is being cleared as expeditiously as possible so that there can be an unhampered go-ahead when the war ends. The railroads, emerging wearily from their colossal war effort—as notable as any in the whole category of industrial contributions to victory—seemingly will be first to feel the punishment that in the ruling political philosophy should be especially reserved for business that is politically too big.

Probably the best indication of what the postwar anti-trust prosecution pattern will be is to be found in the series of addresses made by Wendell Berge, assistant attorney general of the United States, during recent months. He has talked to all sorts of people and in all sorts of places, and the thesis always has been the same. He believes that government controls—priorities, allocations, rationing and prices—should be discontinued as rapidly as possible and that free competition should be given full play under the protection and stimulus of a vigorous anti-trust scrutiny.

Mr. Berge thinks the hazards to free enterprise that lie ahead comprise not only the danger of bureaucracy holding tight to its controls of business but the danger that monopoly-minded industrialists may ask for continuation of certain government controls, indicating a loss of enterprise and vigor on their part and a desire to retain their share of the markets without the necessity of meeting the daily give and take of competition.

Another envisaged danger which Mr. Berge is studying to circumvent lies in the disposal of government war plants and facilities. He is understood to take the position that his office should review disposal plans to prevent accumulation of property in certain hands. This, he feels, would lead to potential anti-trust problems or the creation of conditions which would develop new anti-trust law violations. Consequently he is very much interested in the recommendations of such groups as the Smaller War Plants Corp. and the Murray-Patman Committee. Here he is on a popular chord, judging from the unanimous concern of the major party platforms for the small business man.

Mr. Berge is consistent in his position with respect to the monopolistic tendencies of government controls. "Because freedom of opportunity is essential to a free way of life," he says, "we do not accept the arguments of a managed economy." He amplifies: "The idea of a rigidly controlled economic system is contrary to our aims and repugnant to our belief that political freedom rests on the basis of economic freedom. . . .

"The present controls of government which have regimented and welded us into a wartime economy must be removed as soon as possible after the peace. To delay beyond the period of necessity is to invite their perpetuation. . . .

"It is recognized, of course, that some controls during the transitional period are necessary. In general it seems that necessity continues only so long as there are vital shortages and only in the fields where shortage exists. When scarce materials cease to be scarce, there would seem, as a general rule, to be no further need for transitional controls. . . .

"Many monopolists today are urging what they call a continued partnership between government and business after the war. What they really hope for is a policy that will result in government approving and condoning monopolistic practices. But what they should know is that in the long run such a program will inevitably mean strict government regimentation of all business—government direction of business in the minutest detail by a mammoth bureaucracy. And this will signalize the permanent disappearance of our economic and political freedom."

Mr. Berge would seem, from these utterances, to be the arch-friend of private enterprise. But to keep the record in balance maybe it ought to be reported that to a lot of the nation's business men, big ones and little ones, he looks like Red Riding Hood's wolf dressed up in grandma's night cap. Have you, by the way, read the article about Wendell ("They're Going to Save Capitalism—They Say") in the Sept. 2 Saturday Evening Post?

——BREAD IS THE STAFF OF LIFE——

INTERNATIONAL FOOD CONTROL

SUDDENLY the talk veers from food scarcity to food surplus. Now we must begin to think, sooner than expected, what to do with the vast accumulations of supplies and with the vaster capacities for production which have been brought into being to meet the war emergency. Quite naturally the thinking and the planning falls into an international pattern. Nearly everything does.

The trend symbolizes itself in the proposed Food and Agriculture Organization of the United Nations, details of which were given in a recent issue of this journal. Broadly stated, the objectives of this body are to raise nutritional levels, improve production and distribution efficiency, better the living conditions of rural populations, and by these and other means to contribute to an expanding world economy. Only by such all-inclusive devices as these could the world's greatly expanded capacities for producing food and other products of agriculture be accommodated.

The alternative to finding or making a market for full production of farm products would be the old and now discredited expedients of crop quotas, surplus dumping or destruction, and government buying and storing in modern ever-normal granaries modeled upon those of the Pharaohs, the Incas and the ancient Chinese. We have had over-and-above enough of all these things, and even the Secretary of Agriculture no longer recommends them. He is now a prophet of abundance, and he calls for more and more food for more and more people.

Current disputes revolve about the size of prospective food surpluses, not about whether there will be surpluses. The turn-about has happened within the past month or so, influenced by large crops, the dizzy progress of the war in Europe and discovery that far less relief food than was anticipated is being called for by the liberated peoples. Domestic consumption next year will decline, the dopesters remind us, because of reduced employment incident to reconversion of industry. Food stamps undoubtedly will reappear, and there will be accelerated relief and free school lunch distribution, but these can hardly take up the slack. Exports will be large, but not so large as expected, since a considerable part of the foreign relief-feeding can be done, as it is being done now, from the huge stocks of the army. New uses are speculative, and the one important industrial diversion—wheat-to-alcohol—does not seem likely to live long. Army buying will drop as demobilization progresses, and although returned soldiers will continue to eat, they won't eat so much.

Gloomy picture, isn't it? No wonder at all that the planners have upped their sights from purely domestic measures to action on an international front.

——BREAD IS THE STAFF OF LIFE——

IT TAKES A MILLER TO MAKE FLOUR

THE flour milling industry seems to be the country cousin in the estimation of the War Manpower Commission's all-out labor mobilization plan which now has been in operation for two-and-one-half months. Under Paul V. McNutt's formula all available labor is channelled to those industries classed as essential according to the needs of the particular industry and the industry's priority on available labor.

Flour mills generally were classed high in the priority ratings among the different regions into which Mr. McNutt's planners divided the country. But mill managers and superintendents are getting scant solace or satisfaction from these ratings. They were faring better under the catch-as-catch-can system which operated prior to July 1. In fact, a survey of the situation in several of the country's milling centers discloses that the employment stabilization program has not helped at all.

Companies operating more than one mill have had to shift their available employees from town to town in an attempt to maintain the bare minimum of workers at each mill. Running time in all mills has been good, particularly in the "labor deficit" areas, because of the manpower shortage. A large percentage of the men can get in just about as much overtime as they want.

Seekers for employment are getting so accustomed to the ritual of being certified and obtaining referral cards that very few are going first to mills to make application. The majority go directly to the labor office and then, of course, are sent to other war industries higher on the list.

One midwestern mill recently had to resort to shipping in a group of prisoners of war to use in unloading grain when the high schools opened for the fall term. Use of prisoners of war created some resentment among the mill's employees for a time, but when it was explained that either the prisoners of war would be used or the mill would shut down, the resentment cooled.

Some superintendents feel that there is a desire among many job seekers to get into something more permanent than the high-paying but apparently short-lived war jobs, and this naturally puts a more hopeful complexion upon the matter. Men are showing less inclination to quit milling and get into a factory making ball bearings or revolving turrets now that newspaper headline writers and radio broadcasters have convinced most Americans that the war is about over. Security rather than high wages doubtless will become more and more of a determining factor. And perhaps the whole problem will vanish before much of anything can be done about it. The news is that the manpower mobilization plan will be out the window very soon after cessation of hostilities in Europe.

British mill operators are experiencing the same trials and tribulations, if American mill superintendents and managers can find any comfort in that fact. The editor of the flour trade journal Milling, published at Liverpool, complains:

"Work people have been taken relentlessly from flour mills. It may be fortunate that the official mind is not haunted by forebodings, but a considerable strain is placed on the resources of the mills to maintain production. It may be argued that flour mills are no better and no worse off in this respect than other important industries, but that does not help them. The mobilization of the manpower of the nation is a stupendous job, and it would be surprising if there were no occasion for grumbling and anxiety; but just as the Israelites of old protested that they could not make bricks without straw, so it may be said that millers cannot make flour without labor. The government can make nobles and lords when it will; but it still takes a miller to make a sack of flour."

Stuffed Straights

FROM THE MANAGING EDITOR'S SIFTER

By Carroll K. Michener

"BREAD LIKE MOTHER USED TO BAKE."—We all have a pretty good idea of the kind of bread mother used to bake—a fixed idea. No baker's bread ever was as good as that. True, mother used to turn out an occasional batch that wasn't up to standard. She complained of all sorts of things that could—and did—frustrate even her skill. And anyway her bread—even the occasional batch that frankly did seem to have something the matter with it—was a hundred times as good as what Mrs. Jones turned out for the poor Joneses. Which again, though we hardly should permit the thought to enter our heads, seems to indicate that there must have been some mother's bread, in those good old days, which might not have been too much better than what our baker turns out today.

Am I making myself clear, or must I blurt out the awful and sacrilegious truth in so many uncompromising words—that mother's bread (except for what my own mother made) may not have been—in fact, wasn't—all that most of us remember it to have been?

The thing that causes such a spate of heresy at this particular moment is an old cook book my good wife dragged out the other day—not to get a good recipe for making bread but to find background material for a magazine article about a modern home-cooked foode shoppe. The book was used by her grandmother back in the days when mother made a lot of good things to eat besides bread, and made them the hard way.

v v

Now the hard way, particularly with respect to bread, is a kind of circumstantial evidence that bread couldn't always have been good. In fact, the circumstances were such as to invite the pretty certain conclusion that bread frequently was bad and sometimes maybe even very bad. This is not categorically stated in the cook book in question, but if you want that uncompromising kind of testimony, just go back to the Rev. Mr. Sylvester Graham's book about the bread of 100 years ago, and there you'll get it in plenty. It's one of the reasons we have graham bread today—the Rev. didn't like the bad white bread of his day.

But let's take a leisurely gander backward into the difficulties of making bread in grandma's day (cerca 1875, the date "In the Kitchen" was published for Elizabeth S. Miller, who taught the cooking class of the Young Ladies' Saturday Morning Club of Boston):

"Nothing on the table so ensures the health and contentment of the family as good bread; nothing in the whole science of cookery gives such satisfaction, and nothing so establishes one's respect for the cook. In making it how many conditions are to be secured, how many vital to success! The flour must be excellent, the yeast perfect, the quantity of salt exact, and all the proportions correct; if milk is used, it must be new, and in warm weather it must be scalded, and then cooled until lukewarm; the batter must be of the right temperature when the yeast is put in: if hot, the life of the yeast is destroyed; if cold, much time is lost in rising. The room must be of the proper degree of heat, and the bread must stand where the same temperature surrounds it, not on the hearth, exposed to draughts from doors, but on a shelf or table. . . .

"Bread must not be allowed to get too light, and so to lose flavor or to become sour; should it become too light in the last rising, take it from the pans and work it over; and if sour, work in thoroughly a little soda dissolved in boiling water. Kneading must be thorough. The heat of the oven is all-important: if too low, the bread becomes too light before baking; if too high, a hard and sometimes burnt crust covers the loaf. It must be taken from the oven at the right time, evenly and thoroughly baked, neither burned nor clammy, and when baked, instead of smothering it in woolen and cotton, leave it exposed to the air until thoroughly cold, to ensure a crisp crust; then put it away in a well-aired, clean stone crock, and keep it closely covered.

"Flour so differs in quality that it is difficult to give a receipt that may always be followed with the same results. A much larger quantity of some flour is required than of others for an equal measure of water. For this flour of which so much is necessary, boiling water should be used. Bread mixed with milk is much more tender than that mixed with water; it requires less flour and less kneading. . . .

"I am told that the heat required for baking bread is 325 degrees; but as thermometers for testing the heat of ovens are not in common use, we must do the best we can with the old indefinite rules: The heat is right if you can count 30 fast or 20 moderately while holding the bare arm in the oven; it is right if half a teaspoonful of flour, placed on the floor of the oven, browns in one minute with the door shut. In the dim distance there is the dawning of an admirable plan by which we can know the exact heat of an oven without so much as opening the door. In the meantime, let us gratefully continue to burn our arms and brown the flour, until, by constant care and watchfulness, the hand may be trusted to serve as thermometer, and the art of bread-baking be learned to perfection."

v v

This seems to add new and more poignant meaning to the Franklinism: "Practice makes perfect." It also suggests that a good deal of bread may have been made without sufficient practice.

v v

Mrs. Miller gives far more attention to bread making than do the writers of most modern cook books. In fact, she sees in the practice of this kitchen art a value and a virtue as great as the goodness of good bread itself. She says:

"We must rejoice that housework is more healthful than fancy work; that making beds, sweeping and dusting give strength, and that kneading bread, making biscuit and canning fruit 'brush the cobwebs from our brains.'"

From her we get some idea of bread's former status on the table. It was served generously: "Two inches thick, and cut in strips two inches wide."

v v

It appears that a lot of the things we call pie today really are puddings; fruit seems to distinguish the pie from the puddings. Mrs. Miller makes two exceptions—pumpkin and custard, which strictly speaking should be called puddings, though to name them that in defiance of time-honored New England pie-nomenclature "would be a sacrilege to the memory of our forefathers."

v v

Have you ever wondered why pie isn't eaten for breakfast among the best people, even in Boston? Mrs. Miller explains: "The rule which forbids this is not arbitrary, but full of reason: it secures to each meal its own distinctive features. Eating pickles for breakfast, we find them less appetizing for dinner; eating pie for breakfast, we cannot relish it as a dessert; and eating cake at the early hours makes it but an old story by tea-time."

v v

Maybe so; but I'm still only about half convinced.

v v

To hear Doc Strowd talk you'd think self-rising flour got its start right under the apple tree in the Garden of Eden, but listen to this from the old cook book: "Much has been said against the use of acid and alkali, and we all know that they are often used unskillfully, and with a far too large proportion of the alkali, thus making bread, biscuit and cake most offensive. Professor Horsford has scientificially selected and combined them in his 'self-raising flour.' We have Baron Liebig's authority for the healthfulness of this preparation in an extract from a letter to Professor Horsford: 'I have, through a great series of experiments, satisfied myself to the purity and excellence of your Bread Preparation. The bread has no acid, is easily digested and of the best taste; aside from the conveniences this invaluable idea of yours has provided, I consider this invention as one of the most useful gifts which science has made to mankind. It is certain that the nutritive value of flour will be increased 10% by your Phosphatic Bread Preparation, and the result is precisely the same as if the fertility of our wheat fields had been increased by that amount!'"

■ ■ ■

. . . My old newspaper friend Delos Lovelace of the New York Sun has done it again. While the subject is hot—what could be hotter at a hotter moment?—he has written for publisher Crowell, in his familiar chiseled, colloquial and cadenced style, a biography of General "Ike" Eisenhower. He set this pace for himself when he did the same competent and timely job on the dramatically-ended life of Knute Rockne. . . . In many respects Eisenhower is a far more difficult performance. Written in wartime about such a man the book doubtless had to be silent about many things. And anyway the great general suffers, for book-making purposes, from being very much like a very large number of Americans. He is a plain man, and his life is filled with little else than the plain virtues of a plain people. But there, really, is a story, and Delos has captured it thus. He shows us an Ike, boy and man, who is essentially the product of our American way of life. The general is no dizzy and fortuitous human phenomenon, but he is each and every one of us compounded and forged into the national spearpoint of victorious power. Probably there never before was a general of armies who so closely approximated in personal character the average American citizen. In military character he is no average but a sum total. . . . Delos and his charming wife Maud Hart Lovelace have written a fine shelf of fiction, some of it in collaboration. This book of fact with the fiction touch goes well with the rest.

■ ■ ■

Situation calling for a few choice words from a philosopher: An Army Signal Corps photograph of soldiers helping farmers of Normandy with their wheat harvesting. No hint in this peaceful scene of the horrid breath of Mars, and no mark of his bestiality, but doubtless the sound of his voice was still not wholly inaudible.

WILLIS C. HELM HONORED BY ASSOCIATES AND MEMBERS OF INDUSTRY

The pictures above were taken at two dinner parties honoring W. C. Helm upon the occasion of his 50th anniversary with the Russell-Miller Milling Co. Company associates gave a dinner Aug. 28 and the spring wheat millers' group held a golf party and dinner Aug. 29. Carlton D. McKenzie and Herman Steen, president and secretary, respectively, of the Millers National Federation are shown in the upper left. Harry S. Helm, after 18 holes of golf, is shown in the upper-center picture. Upper left—The guest of honor admires the watch and chain presented him by Leslie Miller (right) on behalf of his company associates. Left center—D. W. Moore, Russell-Miller Milling Co. Center—Frank Allen, Bay State Milling Co., who presided at the Spring Wheat Millers Association dinner, presents Mr. Helm with a set of golf clubs. Right center—John Diefenbach, Amber Milling Co., St. Paul. The men in the lower row of pictures, from left to right, are: Clarence Hardenbergh, Commander-Larabee Milling Co; H. W. Files, Pillsbury Flour Mills Co; W. S. Weiss, La Grange Mills; A. B. Dygert, International Milling Co., and W. R. Heegaard, Russell-Miller Milling Co. Out-of-town guests at the Spring Wheat Millers Association dinner who are not shown in the pictures included E. C. Veeck, Eagle Roller Mill Co; R. N. Conners, Chase Bag Co; J. C. Beaven, Standard Milling Co; Cecil Taylor, Bay State Milling Co; W. B. Webb, Wabasha; Kenneth Templeton, J. S. Templeton's Sons, and H. R. Harmer, Hubbard Milling Co.

Surplus Fiber Boxes Take Army Semolina to Mediterranean

One million surplus fiber board boxes, originally designed for shipping gasoline in 5-gal tins, have been secured by the Quartermaster Corps from the Treasury Procurement Division for use in packing semolina to be manufactured into macaroni for the Army in the Mediterranean area.

The boxes were originally designed and procured for the shipment of gasoline to North Africa, but the campaign against Rommel's troops was shorter than anticipated, resulting in the surplus of fiber board boxes.

Prior to the procurement of the boxes, the Quartermaster Corps had entered into an agreement to supply semolina as well as packages for the finished product to manufacturers in the Mediterranean area. The semolina was obtainable, but the critical nature of fiber board made the procuring of packages very difficult, so the 1,000,000 boxes in the Treasury Procurement warehouses were a windfall.

It was found to be more economical to ship semolina rather than the finished macaroni, as such procedure would show a big saving in shipping and warehouse space as well as in manpower. Shipping as semolina also results in a weight saving.

Aside from the saving effected in shipping, the utilization of the surplus containers made it unnecessary to procure 1,000 tons of new boxes at a cash outlay of $115,000 and also vacated the space in public warehouses in this country which at this time is badly needed.

——BREAD IS THE STAFF OF LIFE——

BORDEN INCOME ABOVE 1943

NEW YORK, N. Y.—The Borden Co. for the first six months of 1944 shows net income $4,325,000, compared with $3,791,275 for like 1943 period.

No Grain Shortage in Eastern Area Anticipated

BUFFALO, N. Y.—Members of the Lower Lakes Grain Committee declared Sept. 7, after an all-day meeting at the Corn Exchange of Buffalo, that no shortage of grain was anticipated for the eastern area this winter, and that sufficient lake freighters will be available to move the volume needed.

William McArthur, director of the grain division of the Commodity Credit Corp., said that the fall requirements of the feed industries in the eastern area will be about 95% of what was consumed a year ago.

The conference could obtain no estimate on the export movement due to the uncertainty of the war. Most of those present thought that this winter's grain fleet will exceed last year's.

——BREAD IS THE STAFF OF LIFE——

MILL SELLS HYDROELECTRIC PLANT

FAIRBURY, NEB. — A hydroelectric plant owned by the Lea Milling Co. and the Lea Bakery at Fairbury has been purchased by the city of Fairbury for use as an addition to the municipal power facilities. The purchase price was $45,000.

Canadian ★ ★

CONDUCTED BY A. H. BAILEY
Manager Canadian Branch
Lumsden Building Toronto 2, Ontario
Cable Address, "Palmking"

Canada's Flour Mills Break All Records in 1943-44 Output

TORONTO, ONT.—Production of flour by Canadian mills in July, the closing month of the crop year, amounted to 1,741,564 bbls, the smallest monthly output of the year. Notwithstanding this tapering off in the final month, production in the crop year 1943-44 topped all previous records, amounting to 24,288,877 bbls, compared with 23,549,707 in the preceding year.

The output of winter wheat flour in the 12 months, which is included in the foregoing figures, amounted to 361,198 bbls. This is the smallest winter wheat flour production in many years and follows a year of the highest production on record. In 1942-43 the quantity manufactured totaled 1,083,045 bbls.

Wheat flour exports in the crop year 1943-44 showed a substantial increase over the preceding year and are the highest in Canada's milling history. The quantity of flour exported was 13,464,371 bbls as against 12,575,215 in 1942-43.

Canadian production and exports of flour in the crop year 1943-44 by months are shown in the following table with total figures for the preceding year:

	Production 1943-44 bbls	Exports 1942-43 bbls
August	1,888,030	1,121,568
September	2,014,255	873,917
October	2,118,409	849,886
November	2,175,831	857,691
December	2,173,433	1,106,479
January	2,041,193	1,125,034
February	2,087,705	854,272
March	2,267,307	1,226,281
April	1,948,537	1,542,830
May	1,962,264	1,575,589
June	1,870,349	1,333,069
July	1,741,564	997,755
Totals	24,288,877	13,464,371
Totals last year	23,549,707	12,575,215

——BREAD IS THE STAFF OF LIFE——

95% EQUALIZATION FEE FOR WINTER WHEAT FLOUR

TORONTO, ONT.—The Canadian Wheat Board has announced an equalization fee of 95c per bbl on exports of Ontario winter wheat flour and permits are now available. This equalization fee must be paid by the exporter when making application for an export permit.

Winter wheat millers have been anxiously awaiting the decision of the board with regard to the amount of the equalization fee as no export business could be done until this matter was settled. Now it is claimed that the fee is much too high and it will be impossible to make export sales to the British West Indies, the most important available market for this flour. Exporters state they have offered winters on the new price basis without receiving a single acceptance. The equalization fee of 95c bbl brings the price of winters almost to the same level as springs whereas buyers in the West Indies have been accustomed to getting this flour at a substantial spread under spring wheat flour.

It is regrettable if this season, when there is a large crop of excellent quality winter wheat available for grinding, it is found impossible to export the flour. In addition to the loss sustained by Ontario winter wheat flour mills there will be an even greater drop in the finances of the Ontario farmer if he is unable to turn his wheat into cash through the sale of flour. There is no export market for the wheat itself so the only chance of disposing of the surplus over domestic requirements is through flour sales.

——BREAD IS THE STAFF OF LIFE——

WHEAT OF MILLING QUALITY AVAILABLE TO RURAL MILLS

WINNIPEG, MAN.—The Canadian Wheat Board is prepared to permit country mills which experience difficulty in carrying on their normal gristing business because the wheat being delivered to them for gristing is not of milling quality, to exchange such non-millable wheat for board stocks of milling quality wheat which may be available in local country elevators.

The exchange will be on a bushel-for-bushel basis and cash settlement must be made for the difference in grades, basis the board's fixed prices date of exchange, plus the usual elevation charges.

Exchanges cannot be permitted which will result in the elevator receiving a larger quantity of wheat than is delivered to the miller, as this would reduce the storage space reserved for deliveries by local permit holders.

——BREAD IS THE STAFF OF LIFE——

BARGAINING AGENCY NAMED

WINNIPEG, MAN.—The Brotherhood of Railway and Steamship Clerks, Freight Handlers, Express and Station Employees has been certified as bargaining representative for five industries at the Lakehead ports of Fort William and Port Arthur. It will represent all monthly and hourly rated employees except foremen, supervisors and office staff employees of the Superior Elevator Co., Ltd; Northland Terminals, Ltd; National Grain Co., Ltd., and Reliance Grain Co.

——BREAD IS THE STAFF OF LIFE——

MORE OATMEAL PRODUCED

TORONTO, ONT.—In the crop year closing with July last production of oatmeal in Canada amounted to 29,266,945 lbs as against 10,266,028 in the corresponding period of the preceding year. The quantity of rolled oats produced totaled 96,718,141 lbs, compared with 92,274,562. Export orders account for the increased output in 1943-44. In the preceding year there was no export demand for rolled oats and oatmeal.

——BREAD IS THE STAFF OF LIFE——

FIRE DESTROYS VIVA PLANT

TORONTO, ONT.—The 100-bbl mill of Viva Cereal Products, Ltd., Beeton, Ont., burned on April 27 with a loss of $35,000, partly covered by insurance. The fire was caused by an over-heated shaft. Acquired by the operating company about four years ago, the plant was used for the production of special lines of flour and cereal products.

Western Canada Co. Adopts Retirement Pension Plan

TORONTO, ONT.—The Western Canada Flour Mills Co., Ltd., Toronto, Ont., has completed and put into effect a retirement pension plan for its employees which is giving a good deal of satisfaction to the staff. In announcing this plan President D. I. Walker speaks of his own personal pleasure that such a scheme has been worked out. It is well known to the staff that he has had something of the kind in mind for a long time. In the past, group insurance at greatly reduced cost has been available to employees whereby they have been protected against accidents, illness and death.

Now under this new proposal, those who grow old in the service will have adequate monthly income at retiring age. Participation is voluntary but few of those on the regular payroll will not wish to participate. The cost of past service credits will be borne by the company while future service benefits will be on a basis of equal contributions by the company and those who take advantage of the pensions privilege. The normal retirement age is placed at 65 for men and 60 for women. Special terms apply in certain cases where earlier or later retirement is desirable. The rate of contribution by employees is 4% of gross remuneration, exclusive of bonuses, overtime and special allowances. The company contributes a like amount. In case of death before the retiring age is reached the credit in this fund will be paid to the deceased person's estate.

This plan has the approval of the department of labor of the Dominion government.

——BREAD IS THE STAFF OF LIFE——

CANADIAN MILLS PREPARE TO SERVE POSTWAR TRADE

TORONTO, ONT.—Now that the war is drawing to a close and resumption of peacetime pursuits draws nearer, Canadian mills are looking over the situation with a view to action when exporting flour direct to private buyers abroad may again become possible. They are aware that there must be quite a lapse of time before hopes for the future can be realized but they see no harm in preparing now for that day.

There are those on both sides of the Atlantic who believe control will be prolonged into the peace period. This belief is based on the ruin which retreating Germans are leaving in their wake. The process of reorganizing civilian life and commercial activities would certainly take time, but that may be shortened by advance planning.

As an alternative to the control system plans for restoration of private trading in flour will be evolved. Canada has already provided a convenient and presumably workable means for financing under government aid such trade. Wether this will be effective or not waits for demonstration. In any event the milling industry intends returning to the business of shipping flour abroad as soon as it is possible to do so. Holland and Norway are among the former markets for Canadian flour which may reappear as buyers much sooner than now seems possible.

——BREAD IS THE STAFF OF LIFE——

ONTARIO BAKERS PERMITTED TO EXCEED 52-HOUR WEEK

TORONTO, ONT.—Ontario bakers have been finding it difficult in view of the manpower shortage to comply with the 56-hour week, which is the maximum allowed under the Ontario Factory, Shop and Office Building Act. A presentation of the situation was placed before a special committee of the Department of Labor and as a result permission has been given to increase the number of hours per week to 62 as a temporary measure and only in emergencies such as production for the week-end. The arrangement is subject to cancellation at any time. Any bakeshop exceeding 56 hours per week as laid down in Section 69 of the Ontario Factory, Shop and Office Building Act must report each week to the Chief Inspector, Department of Labor, Parliament Buildings, Toronto.

——BREAD IS THE STAFF OF LIFE——

DRAWBACK RATES ESTABLISHED

WINNIPEG, MAN.—For the month of August and for each succeeding month until further notice the drawback to be paid on domestic deliveries of flour and wheat products will be based on an average price of $1.25 bu for No. 1 northern and $1.25 for No. 1 C. W. amber durum in store Fort William or Port Arthur, according to latest wheat board instructions to all mills. The appropriate price being established at 77⅞c bu, the drawback on the two grades mentioned will be 47⅝c bu.

——BREAD IS THE STAFF OF LIFE——

SEED EXCHANGE ARRANGED

WINNIPEG, MAN.—The Canadian Wheat Board will allow companies to exchange board stocks of any variety of red spring wheat grading No. 1 hard, No. 1 northern or No. 2 northern, or durum wheat grading No. 1 C. W., for other wheat, to enable bona fide producers to secure their seed requirements. All exchanges must be on a bushel-for-bushel basis with cash settlement for differences in grades, basis fixed board street spreads.

——BREAD IS THE STAFF OF LIFE——

CANADIAN MILLFEED PRODUCTION

TORONTO, ONT.—Production of millfeed in Canadian flour mills in the crop year which ended with July, 1944, amounted to 794,868 tons, compared with 788,229 in the previous year. Practically all of the millfeed output of 1943-44 was used for feeding purposes in home markets. The quantity exported was less than 5%.

TEA TABLE
OVENSPRING
BIG VALUE

Three Fine Flours...

Milled expertly by men who have pride in their quality reputation.

Dependable Quality and Value at Fair Price.

THE WEBER FLOUR MILLS CO. • SALINA, KANSAS

"SUPERFLOUR"
"BUFFALO"

Tops in Bakery Flours

★ ★

THE WILLIS NORTON CO.

Quality Millers Since 1879

Capacity 1,500 Bbls. WICHITA, KANSAS

KING'S FLOURS
are Made in Minnesota ... and Nowhere Else

•

MINNESOTA ... the state that has made MORE FLOUR than any other state in the Union.

MINNESOTA ... the state that makes the BEST FLOUR in the world.

Buy flour that is guaranteed "Made in Minnesota"

H. H. KING FLOUR MILLS COMPANY
MINNEAPOLIS, MINNESOTA

La Grange Flours . . .

whether plain or enriched, remain the same high standard, dependable flours that have characterized the products of La Grange Mills over the half century and more of their operation.

This quality pattern is not an accident but the result of painstaking care in wheat selection and careful milling.

You can depend on LA GRANGE FLOURS

LA GRANGE MILLS RED WING, MINNESOTA

Van Dusen Harrington Co.

• *Grain Merchants* •

BUSINESS FOUNDED 1852

MINNEAPOLIS DULUTH

CONTINENTAL GRAIN CO. MILLING WHEAT FROM EVERY PRODUCING SECTION OF THE UNITED STATES

TERMINAL ELEVATORS
Chicago, Columbus, St. Louis, Portland, Kansas City, Galveston, Omaha, Enid, Toledo

OFFICES
New York, Chicago, Kansas City, St. Louis, Omaha, Columbus, Nashville, Enid, Minneapolis, Davenport, Buffalo, Cedar Rapids, Peoria, Galveston, Portland, San Francisco, Vancouver, B. C., Winnipeg

After all/
"There is No Substitute for Quality"

There is nothing uncertain about

BAY STATE Flours

milled from guaranteed hard spring wheat. They are flours that will produce a class of bakery goods not of average—but of

EXCELLENT QUALITY

BAY STATE MILLING CO.
MANUFACTURERS OF
HARD SPRING WHEAT & RYE FLOURS
WINONA, MINNESOTA

European ★ ★

CONDUCTED BY C. F. G. RAIKES
Manager European Branch
52 Mark Lane London, E. C. 3, England
Telegraph and Cable Address,
"Northwestern Miller, Mark Lane, London"

Food Production in Europe Studied by UNRRA Group

LONDON, ENGLAND.—The part to be played by the United Nations Relief and Rehabilitation Administration in the restoration of European agriculture was the subject of a conference at the UNRRA offices in London on Aug. 24. It is recognized that the reconstruction of European agriculture depends as much on wise policy and efficient organization, co-operation and the application of scientific and technical knowledge, as on the actual import of materials, and the responsibility for most of this organization lies with the governments of the United Nations.

Sir John Russell, formerly director of the Rothamsted Experimental Station, Harpenden, England, and now chairman of the technical subcommittee on agricultural rehabilitation, explained that there were three stages in the re-establishment of food production in Europe. The first was the period when the military were in charge and farmers had to be encouraged to produce as much food as possible. This was an emergency period. The real business of UNRRA started when the military stage was over, and the job would be to get the agricultural machine going in the different countries. The third stage would be when UNRRA handed over to the civil authorities. He pointed out that various problems would arise in the different countries because of the different types of agriculture practiced. The productiveness of the soil in most countries had gone down owing to short supplies of fertilizers and less nutritive animal feeding stuff. Schedules of appliances and other items would be necessary for the restart of European agriculture and would have to be arranged in order of priorities.

The countries represented on the committee are Belgium, Czechoslovakia, Denmark, France, Greece, the Netherlands, Norway, Poland, Jugoslavia, the United Kingdom, U. S. A., U. S. S. R., Iceland, Brazil, Canada and New Zealand.

British Canteens Serve 50,000,000 Meals Per Week

LONDON, ENG.—The British Minister of Food states that at the end of May, 1944, there were 17,178 industrial canteens in operation in Britain, compared with 14,294 at the same time in 1943. The canteens now in operation are serving about 50,000,000 main meals per week. These industrial canteens are divided into two categories. "A" canteens, numbering about 5,844, for the heavy industries, receive certain additional foods. "B" canteens, for the lighter industries, number 11,334. Most of the canteens are run by employers, employees or by joint committees set up for the purpose, but 2,741 are operated by catering contractors.

In the British restaurants for the general public, a good substantial meal can be obtained for 24c to 34c, the latter price including a cup of tea or coffee. These restaurants also are of two descriptions, some being run under the direct auspices of the Ministry of Food, others by local authorities or by voluntary bodies or school canteens. They number 2,082 and in January, 1944, were serving about 583,000 meals daily.

—BREAD IS THE STAFF OF LIFE—

ARGENTINE FLOUR IN BRITAIN

LONDON, ENGLAND.—Colonel Llewellin, minister of food, recently told Parliament that a comparatively small amount of Argentine flour was imported into Great Britain last year. It is white flour of satisfactory quality, he said, but its condition on arrival has sometimes necessitated reconditioning.

British Trade Union Congress to Study "Milling Monopoly"

LONDON, ENGLAND.—The British Trade Union Congress is drafting a plan for postwar reconstruction of industry to submit to its annual conference in October, and among the various industries which the planning committee considers will require some measure of direct public regulation is "grain milling" to "prevent use of monopoly powers." Commenting on these plans of a body of men who have no working knowledge of the flour milling industry or the grain trade, The London Corn Circular remarks:

"If grain trade control and operation were to be continued on the lines of wartime procedure the government would be faced with many difficulties on the importing side. The limited allocations of ocean tonnage for transport of grain and other foodstuffs have resulted in the Imported Cereal Division of the Ministry of Food buying nearly all its breadstuffs, whether in the form of wheat or flour, from the most convenient source as regards ocean transport, and that, fortunately, happens to be Canada, whose government has never hesitated to let us have our requirements.

"When the day of reckoning up debits and credits arrives we cannot envisage Canada continuing to supply this country's needs except on ordinary business lines, which means payment to the last cent. Furthermore, as more vessels become available, other exporting countries, particularly Australia and Argentina, will expect to resume their place as suppliers of grain, flour, etc., and there is no reason to suppose that any of these countries will want to sell otherwise than on prewar contract lines. This will entail a return to fluctuating price markets.

"In any case, crop failures are always possible and it is in our own interests to be able to draw supplies from several exporting countries and encourage surplus production in them."

—BREAD IS THE STAFF OF LIFE—

BOMBS AND HOLIDAYS SLOW FLOUR DEMAND IN LONDON

LONDON, ENGLAND—Several reasons have contributed to a very slow demand for flour in London for the last few weeks, the major cause being the large evacuation of women and children to get away from the flying bombs, together with the biggest exodus of other members of the populace for their holiday vacation since the beginning of the war, owing to the ban being removed from many of the seaside resorts and extra traveling accommodation provided under the direction of the government. A ban against visitors was placed on seaside resorts for defensive reasons which the authorities now consider can be relaxed with the retreating fear of invasion by the enemy, and, given the opportunity, the Londoner rushes to the sea and the delights of a seaside holiday. Then, as always, the spell of hot weather has had its effect on appetites and the demand for bread.

With large quantities of home-grown wheat becoming available it appears that the Ministry of Food is less ready to accept Canadian shippers' offers although some purchases are reported. The British Ministry of Agriculture is urging farmers to spread their sales of grain as evenly as possible over the season so as to avoid gluts on the one hand and periods of scarcity on the other.

—BREAD IS THE STAFF OF LIFE—

NO INDICATION OF FLOUR MILL DAMAGE IN FRANCE

LONDON, ENGLAND.—It is pointed out in the Miller that there has been no mention of flour mills having been destroyed in France, and what is perhaps of greater importance, that the utter disorganization of the German forces garrisoning France has prevented the confiscation of wheat stocks from the newly-gathered harvest. This, says the commentator, will have no small effect on the flour and bread supply, though, of course, nothing is known of the level to which the wheat production of France has fallen during the four years of subjection, with its terrible loss of manpower and of agricultural equipment. For the present the immediate needs of the country in foodstuffs are being supplied through army sources.

—BREAD IS THE STAFF OF LIFE—

EUROPEAN BREAD GRAIN REQUIREMENTS NOT LARGE

LONDON, ENGLAND.—The view of the Corn Trade News is that relief requirements of bread grain in the liberated countries of Europe will be smaller than many predict. As far as is known there has been no actual shortage of bread, except in Poland, Greece, parts of Russia and Italy, nor is there any evidence that whole populations are short of bread or that many years must elapse before home production can meet deficiencies. Where bread has been rationed the scale of rations, with few exceptions, has been generous. There is some assumption, the writer adds, that in a number of countries bread rations would not have been necessary but for the shortage of other foods.

ROBOMBED BREAD

★

LONDON, ENGLAND. — A London baker recently was summoned for "having a loaf of bread not weighing 1 lb or an integral number of pounds" on sale in his shop. It was disclosed that the baker's employees very much resented the case being brought against their employer. Apparently, they had all been working while the flying bombs were coming over, but were compelled to take shelter for 10 or 15 minutes. The bread was in the oven and should have been drawn at the moment when they were compelled to seek shelter, with the result that a few of the loaves were in the oven rather longer than required. This caused an excess of evaporation, resulting in the short weight.

The defendant's attorney said it was very unfair to the men who had stuck to their jobs to provide bread, in spite of the flying bombs, that their employer should be prosecuted under such circumstances.

The magistrate, having heard the evidence, dismissed the case and awarded no costs to either side.

BAKER PRISONERS FORM STUDY GROUP

★

LONDON, ENGLAND.—Bakers who are now prisoners of war in Germany at Stalag 383 have formed themselves into a study and discussion group. Among their "discoveries" is a cake made of bread crumbs, mashed potatoes and Red Cross biscuits ground down into meal and iced with a mixture of dried milk, sugar and margarine.

SUNNY KANSAS

Steady bake-shop habits; pleasant bread personality; a profitable friend . . .

That is SUNNY KANSAS as you know it, or as you will quickly learn to know it when you use it in your bakery.

★ ★

The Wichita Flour Mills Co.

5,000 Sacks Capacity 1,000,000 Bushels Storage

WICHITA : : : KANSAS

Coast To Coast Grain Service

CARGILL
INCORPORATED

Minneapolis and
All Principal Grain Markets

WHEAT
WINTER
SPRING
DURUM
• • •
By the
TRUCK-LOAD
CAR-LOAD
BOAT-LOAD
• • •
Any Where
Any Time

ARCHER-DANIELS-MIDLAND COMPANY
J. M. CHILTON, Mgr. Grain Dept.
GRAIN MERCHANTS
Milling Wheat and Coarse Grains
MINNEAPOLIS

MILWAUKEE, WIS.
BUFFALO, N. Y.
KANSAS CITY, MO.
SAN FRANCISCO, CAL.
OMAHA, NEB.
PORTLAND, ORE.
DULUTH, MINN.

NEW COTTON PRICES CAUSE HEAVY BUYING BY BAG MANUFACTURERS

NEW YORK, N. Y.—Issuance of new prices on cotton sheetings developed substantial sales to bag makers. Osnaburgs are still out awaiting new ceilings, but in the flurry that followed the announcement on sheetings, manufacturers covered their needs, in some cases, to the end of the year, and in others, only through October. Since the trade had been marking time awaiting this news, allocations had been previously earmarked and could be filled from the accumulations in stock in an orderly manner with regard to priorities, and bag makers with an AA-2X rating were in line for substantial yardage.

Revised estimates of postwar textile needs in Europe present a greatly reduced picture of the possible volume of exports from this country. An appraisal of the condition of this industry not only indicates greatly lowered anticipated requirements by the domestic population of the various liberated countries, but also the possibility that foreign mills may be able to compete with Americans in the export market far sooner than had been indicated. The Combined Resources Planning Board has recently pointed out that spindle damage may be less than 10% due to the rapid freeing of territory in northern France in the swift Allied military advance. Action in Belgium and Holland may give the same results, while in England textile machinery has been kept in good working condition, ready for early production. While reports are still fragmentary, they are considerably more authentic than have been previously possible.

The outlook for future burlap, however, arouses grave concern. While current stocks are adequate, it is recognized that purchases in Calcutta have not commenced to equal the desired quantities with no reports yet received of buying into 1945. A bulletin of the Jute and Burlap Association members views production prospects as serious, and likely to grow worse, with the lack of coal the chief factor. The space in jute mills requisitioned by the army for storage removes about 25% of the Calcutta production capacity since it cannot be supplied by other mills without additional coal. Some odd constructions of burlap which have not been available here since the war are being acquired but not in sizable volume.

No indication is given on possible reductions in quotas to the bag trade and allocation certificates for the last quarter are expected to be extended to these manufacturers around the middle of the month.

Bemis Bro. Bag Co.'s cotton goods index, a composite figure reflecting wholesale prices of principal cotton cloth used in bag making expressed in cents per yard of cloth, is 8.41 as compared with 8.00 a year ago. The Bemis composite figure reflecting duty paid early shipment prices of heavy and lightweight Calcutta burlap expressed in cents per lb of cloth is 17.69 as compared with 17.53 a year ago.

—BREAD IS THE STAFF OF LIFE—

ON HIS WAY EAST

E. J. Quinn, vice president, Commander-Larabee Milling Co., Minneapolis, left Sept. 11 for the East.

Since 1882

FLOUR

WITH THE ARMED SERVICES

Dwight and Jack Hilton are sons of D. Lee Hilton, Sr., former president of the Southern Bakers Association, who recently sold his bakery in Charlotte, N. C., and plans to enter the flour brokerage business. Dwight Hilton has been

Dwight Hilton

Jack Hilton

in three invasions—Sicily, Italy and Anzio Beach. He is a captain in an anti-aircraft outfit and has been in combat zones since June 1, 1943. His younger brother, Jack, is an air cadet in training at Greenville, Texas, and expects to get his wings by the end of the year.

★

Promotion of Arthur M. Buchanan, formerly a southeast merchandiser for the Pillsbury Flour Mills Co. at Jacksonville, Fla., to the rank of captain has been announced by Lt. Gen. Ira C. Eaker. Capt. Buchanan is now serving as a pilot in a combat assigned medium bombardment group of B-25 Mitchells in the Mediterranean theater. The group has been cited by the War Department for valuable service in the Tunisian and Sicilian campaigns.

★

David Lukens, Wichita, son of the late David Lukens, who until his death about 18 years ago was associated with his brothers Ed and Art in Lukens Milling Co., Atchison, Kansas, has been honored in being selected by the navy through competitive examinations to attend Johns Hopkins medical school. The young sailor's stepfather is a doctor in Wichita.

★

A letter of confirmation from the War Department gave C. C. Kelly, vice president of the William Kelly Milling Co., Hutchinson, Kansas, no additional information on the death of his son, Lt. Charles Kelly. The young air corps officer died in a training flight crash in Italy Aug. 20, less than a week after his arrival.

★

Eight more employees of the Pillsbury Flour Mills Co. have recently been called into the armed forces, making a total of 776 persons in the service. Eight of them have died or have been killed in action.

★

Lucian S. Strong, president of the Strong-Scott Mfg. Co., Minneapolis, has been notified by the War Department thas his son, Lt. Lucian S. Strong, Jr., a pilot in the Army Air Corps, was killed in action over Germany on July 20. Lt. Strong, who was 22 years of age, was previously reported as missing. He went overseas last March.

★

Ward B. Stevenson, assistant to M. F. Dougherty, industrial relations manager of the Pillsbury Flour Mills Co., Minneapolis, has been inducted into the navy.

——BREAD IS THE STAFF OF LIFE——

United States Grain Stocks

Commercial stocks of grain in store and afloat at the principal markets of the United States at the close of the week ending Sept. 2, 1944, and Sept. 4, 1943, as reported to the United States Bureau of Agricultural Economics, in bus (000's omitted):

	American		Canadian in bond	
	Sept. 2	Sept. 4	Sept. 2	Sept. 4
	1944	1943	1944	1943
Wheat	200,509	220,348	18,579	8,364
Corn	10,318	8,649	...	...
Oats	13,213	13,100	1,959	236
Rye	15,803	23,850	696	868
Barley	17,489	17,548	101	1,010
Flaxseed	1,103	1,137	...	...

Stocks of United States grain in store in Canadian markets Sept. 2 (figures for corresponding date a year ago given in parentheses): wheat 631,000 (none) bus; corn 432,000 (299,000); oats, none (none); rye none (24,000).

——BREAD IS THE STAFF OF LIFE——

Flaxseed Receipts, Shipments and Stocks

Receipts, shipments and stocks of flaxseed at principal primary points for the week ended Sept. 2, in thousand bushels, with comparisons:

	Receipts		Shipments		Stocks	
	1944	1943	1944	1943	1944	1943
Minneapolis	1,052	1,668	152	227	582	662
Duluth	122	474	273	495	277	295

——BREAD IS THE STAFF OF LIFE——

ALEX SINAIKO DEAD

MADISON, WIS.—Alex Sinaiko, 80, for many years owner and operator of the flour and feed business on West Washington Ave., the site of the Standard Feed & Seed Co., died at a local hospital Sept. 9, following an extended illness. He had retired from active business several years ago.

OBITUARY

VITO VIVIANO

Vito Viviano, 68, died Sept. 7 at his home. He was president of the V. Viviano & Bros. Macaroni Mfg. Co., St. Louis. Mr. Viviano came to America from Italy in 1900. With his brother, Peter, the company was started in 1903. He was knighted as a cavalier in 1925 by King Victor Emmanuel for assisting the American Red Cross and Italian people in St. Louis during the first World War. Surviving are a daughter, a son, two brothers and two sisters.

CARL J. FRENZEL

Carl J. Frenzel, for many years chief engineer for the Essmueller Co., St. Louis and Kansas City, died Aug. 24. He was 58 years old. A successor to Mr. Frenzel has not been named. Known to millers and processors all over the Central West, Mr. Frenzel accompanied Essmueller representatives and worked out final designs for new installations or improvements.

G. CARLSON

G. Carlson, a Chicago salesman for the International Milling Co., died on Sept. 6. He had not been in good health for several months. Mr. Carlson was connected with the Chicago sales office of the International Milling Co. about 14 years. He is survived by his widow and one son, who is with the armed forces in France.

Kansas Millers, Chemists Exchange Information on New Crop Qualities

HUTCHINSON, KANSAS.—Operative millers and cereal chemists exchanged opinions and experiences regarding the milling and baking qualities of the new crop hard winter wheat at a joint meeting held here Sept. 9 and the consensus seemed to be that the crop was highly satisfactory from the viewpoints of both groups of critics and processors. The Pioneer Section of the American Association of Cereal Chemists held its meeting in the forenoon and later joined with District 1 members of the Association of Operative Millers for that group's regular fall meeting. There were 118 at the luncheon.

The baking prospects for the 1944 crop were described as good by George Orozovich, baking technologist with the Kansas Milling Co., Wichita. Mr. Orozovich reported on the studies his laboratory has conducted and indicated that the gluten quality of the crop was excellent, producing a loaf of greater volume than would be predicted from the protein content.

A few chemists observed that flour milled from new crop wheat carries a slightly higher amount of pigment, but that the flour responds readily to bleaching without any deleterious effects. The chemists as a group expressed a high degree of satisfaction with the new crop flour and agreed that it is equal to last year's flour in performance.

C. E. Danielson, Wall-Rogalsky Milling Co., McPherson, Kansas, chairman of District 1, presided at the millers' meeting. At an election held at the end of the program, William H. Davidson, Wichita (Kansas) Flour Mills Co., vice chairman, was elected to the chairmanship succeeding Mr. Danielson. J. B. Steele, William Kelly Milling Co., Hutchinson, was elected vice chairman, and William P. Riley, also of the Kelly company, was elected secretary succeeding Mr. Steele.

Mr. Modeer's paper dealt with the uses and significance of statistics and laboratory data in cereal chemistry and production control. He said that there were three factors that affected the usefulness and accuracy of data assembled by most products control laboratories. Those factors are (1) uniformity of sampling, (2) variations in laboratory analytical procedures, and (3) requirements of the industry. The present state of sampling "is not as good as it should be," he said, and recommended a re-study of the A.A.C.C. sampling procedures.

The paper by Dr. Swanson will be printed in its entirety in an early issue of this journal. In his paper, Dr. Swanson used charts adapted from research work done at the agricultural experiment station to show the relationship between protein content, yield, etc., upon the amount of available nitrogen in the soil.

John Giertz, laboratory supervisor for the Kansas Milling Co., Wichita, presented a paper entitled, "Characteristics of the New Crop From a Chemist's Viewpoint."

"What the protein of the 1944 crop lacks in quantity is balanced by quality of the gluten," he said. "The lower protein makes a nice loaf of bread of satisfying volume and eating qualities—the goal we are all trying to reach."

Mr. Giertz said that with modern harvesting methods, the wheat is lacking in alpha-amylase or starch-liquefying enzymes and the new crop flour requires about the same small amount of diastatic supplements to correct the low diastatic activity.

"The absorption and fermentation time have not changed much for flour of the same protein level," Mr. Giertz declared. "The baker must take into account the lower protein in adding very slightly less water to the flour. The mixing time shows a wide range, but on the average, the mixing time is shorter. The lower protein flours will, on the average, develop faster so either the fermentation must be cut by formula or by a shorter time. The dough has good gas retention and gives a better loaf volume and internal characteristics than would normally be expected from the protein level."

——BREAD IS THE STAFF OF LIFE——

PILLSBURY ISSUES STOCK TO RETIRE FUNDED DEBT

MINNEAPOLIS, MINN.—Offering was made Sept. 12 of 75,000 shares of Pillsbury Mills, Inc., $4 cumulative preferred stock, without par value, at $100 per share.

Proceeds from the sale will be used in part for the retirement of all the company's remaining funded debt amounting to $4,475,000 of first mortgage 3% bonds. The balance will be added to working capital.

After giving effect to the present financing plan, the outstanding capitalization of the company will consist of 75,000 shares of preferred stock and 549,224 shares of common stock. A sinking fund, beginning with the year ending Oct. 15, 1946, is to be provided to retire annually a minimum of 2% of the preferred stock, this minimum increasing with earnings to about 4%.

The preferred stock is to be redeemable at $105 per share for purposes other than the sinking fund and at $102 per share for sinking fund purposes, if redeemed before Oct. 15, 1947, with reductions of 50c per share on that date and annually thereafter, to the offering price, plus accrued dividends in each instance.

——BREAD IS THE STAFF OF LIFE——

ALEX GRAIF RETIRES FROM KING MIDAS FLOUR MILLS

MINNEAPOLIS, MINN.—Alex Graif, for 32 years a salesman for the King Midas Flour Mills, Minneapolis, leaves this week to make his home in Pasadena, Cal. For the past 17 years he has been in the durum department, and is well and favorably known to the macaroni trade from coast to coast. Although retiring, he expects to act as a special representative for the company on the west coast. Before leaving, Mr. Graif was guest of honor at a farewell dinner given for him at the home of W. M. Steinke, vice president of the company, and was presented with a suitably inscribed gold watch.

ARNOLD
...of...
STERLING

Mills and Sells

"Thoro-Bread"
(Diastatically Balanced)

A very fine, strong, altogether uniform and dependable flour

ARNOLD MILLING CO.
STERLING, KANSAS

"Hunter's CREAM"
A Kansas Turkey Wheat Flour
that for more than sixty years has stood at the very top of the fine quality list.
The Hunter Milling Co.
Wellington, Kansas

IT'S BIN AGED
Flour from this mill comes to you fully aged — ready to use
ATKINSON MILLING CO.
MINNEAPOLIS, MINNESOTA

American Ace
—A very fine, short, strong patent milled in one of the West's very finest flour mills.
American Flours, Inc.
NEWTON, KANSAS

We are always ready to fill your requirements of
MILLING WHEAT
MOORE-SEAVER GRAIN CO.
Operating Kansas City Southern Elevator Kansas City, Mo.

ACME
BAKERS SHORT PATENT
FLOUR
Also "GOLD DRIFT"
These Brands Meet Every Shop Need
The ACME FLOUR MILLS CO.
Oklahoma City, Okla.

Feed Review

(Continued from page 12.)

equal monthly shipments. The quantities were not particularly large, but it was considered significant that mills were willing thus to commit themselves. Offerings of January-February futures bran at Kansas City found no takers. Buyers of this feed express a bearish attitude for months beyond the end of the calendar year, but some are willing to take the entire 12 months to get the near-by stuff. Kansas City handlers state that weakness in barley, which has declined to a basis of $40 ton, unground, and sorghums, now selling in deferred positions at $2 cwt, is contributing to the freer offerings of millfeed. Clear flour is not being bought in any quantity by the feed trade now, as feed grain has become available at competitive levels.

While prices in the Northwest are still clinging firmly to ceilings, a much easier undertone has developed at all producing markets. At Minneapolis, jobbers and mixers are still willing to book for shipment throughout the remainder of the calendar year at full ceilings, but have withdrawn offers to buy beyond the turn of the year. Chicago reports ready outlets for millfeed production, but a noticeable relaxation in the urgency of demand is evident. Offerings remain light at Buffalo and the few lots appearing for sale find ready outlet. Ground and flaked wheat made from Canadian frosted grain is quoted at $55.50 ton at that market.

PRODUCTION

Millfeed production at Buffalo, in the Northwest and Southwest, decreased about 3,200 tons during the week, with the total output at the three conters amounting to 49,132 tons, compared with 52,404 the previous week and 47,181 a year ago, according to figures compiled by THE NORTHWESTERN MILLER. Crop year production to date totals 543,460 tons, against 554,024 in the corresponding period a year ago.

—BREAD IS THE STAFF OF LIFE—

United States Visible Grain Supply

Visible supply of grain in the United States as compiled by the secretary of the Chicago Board of Trade, in bushels (000's omitted), of date Sept. 2:

	Wheat	Corn	Oats	Rye	B'ley
Baltimore.	5,916	7	46	85	16
Boston ...	..	..	..	..	..
Buffalo ..	12,647	173	3,363	2,295	464
Afloat ..	444	..	..	..	..
Chicago ..	9,732	4,768	1,502	10,460	1,139
Duluth ...	11,483	..	1,676	186	2,426
Ft. Worth	15,392	92	426	31	215
Galveston	5,279	..	..	..	..
Hutchinsn	11,984	..	..	..	..
Indnapolis	2,702	707	111	45	..
Kan. City.	36,433	556	98	174	1,508
Milwaukee	2,214	77	10	..	2,337
Mpls.	13,639	228	1,558	2,025	6,023
New Orl...	1,386	13	76	2	114
New York.	839	..	4	1	1
Omaha ...	12,556	1,482	1,463	75	740
Peoria	174	832	..	..	139
Philadel..	2,634	34	10	2	..
Sioux City.	336	75	223	20	196
St. Joseph.	5,176	275	786	9	85
St. Louis..	7,544	1,028	183	55	222
Wichita ..	8,011	..	..	..	186
On Lakes.	194	..	..	..	..
Total Sept. 2, '44 ..	166,715	10,347	11,540	15,465	15,811
Total Sept. 4, '43 ..	185,685	8,750	11,376	22,196	14,241

FEED AND GRAIN CONVENTIONS

Oct. 2-3.—Illinois Feed Association, first annual meeting at Abraham Lincoln Hotel, Springfield, Ill; executive secretary, Lloyd Larson.

Oct. 5.—Iowa Seed Dealers Association, convention at Kirkwood Hotel, Des Moines, Iowa.

Oct. 6-7.—Western Seedmens Association, convention at President Hotel, Kansas City, Mo.

Oct. 8-9.—Grain and Feed Dealers National Association, convention at Stevens Hotel, Chicago, Ill; secretary treasurer, Roger P. Annan, 100 Merchants Exchange Bldg., St. Louis 2, Mo.

"KELLY'S FAMOUS" FLOUR
IS . . .
KANSAS' FAMOUS FLOUR
★ ★ ★ ★ ★ ★
THE WM. KELLY MILLING CO.
Capacity 2,500 Barrels HUTCHINSON, KANSAS

Exceptional Bakery Flours
TWELVE-40 NO-RISK PLA-SAFE
THE ABILENE FLOUR MILLS CO.
ABILENE, KANSAS
Capacity 3,000 Cwts. Daily *Grain Storage 1,000,000 Bus.*

HAROLD A. MERRILL
Grain and Ranches
Board of Trade Building
KANSAS CITY, MO.
Member of the Kansas City and Chicago Boards of Trade

MARKETS IN DETAIL

U. S. FLOUR MARKETS

THE SOUTHWEST

Kansas City: Sales of flour by mills in the Southwest are slow. Bakers are not interested, as flour holds close to the ceiling and they feel that they cannot lose much by waiting out the market in view of heavy discounts in the deferred months. Sales last week were 16% of capacity, compared with 31% the previous week and 34% a year ago.

Millers will soon have some more flour to sell under the subsidy booking limitations, but most millers think it is likely to be a hand-to-mouth selling situation for many weeks and perhaps months. It seems unlikely that the possibility of further subsidy reduction could stir up buying fever, for little interest was shown at the end of August when a reduction was considered almost inevitable.

Some family business, for southern buyers particularly, is going on, but it is not as great as in previous years. Running time is lower and directions are becoming hard to obtain. Some millers think bakers anticipated a continuous increase in business and that it may have leveled off.

Quotations Sept. 9: established brands of family flour $3.80@3.90, bakers short patent $3.25, standard patent $3.20, straight grade $3.15, first clears $2.45@2.60, second clears and low grade $2.30@2.40.

Two mills report domestic business active, 5 fair, 4 quiet, 4 slow and 6 dull.

Oklahoma City: Flour sales last week showed a sharp decline, averaging 15%, as compared to 40% the previous week. All sales were domestic, with 60% going to bakers and 40% to family buyers. Operations averaged 78%, compared to 83% the previous week. Prices closed unchanged. Quotations, sacks, del. Oklahoma points, Sept. 9: hard wheat short patent flour $3.90@4.30; soft wheat short patent flour $3.90@4.30, standard patent $3.80@4.10, bakers short patent $3.35@3.45, bakers standard $3.25@3.35.

Omaha: The past week has been very quiet week in the flour market. Sales did not exceed one third of capacity and were largely of bakery patents. Bakeries are doing a capacity business, but they continue to be only moderate buyers of flour. The greater part of flour buyers wonder why flour prices do not follow the decline in wheat. Ordering out of old orders is fairly good. Quotations Sept. 9: family short patent $3.40@3.55, standard patent $3.15@3.30, bakery short patent $3.05 @3.20, high protein clears $2.60@2.85, fancy first clears $2.20@2.45, low grade clears $2.10@2.15.

Wichita: Sales ranged up to 25% last week, with directions from 75 to 100%.

Hutchinson: New business is limited to scattered carlots. Some buyers, ignoring the pegged cash price, are fishing for contracts based on wheat futures, but are meeting with no success. Mills are not pushing sales in view of the demoralized wheat market and the uncertainty of subsidies. Shipping directions are a shade easier.

Salina: Demand for flour remains draggy. Shipping directions are only fair.

Texas: Sales by Texas mills during the first week of September averaged 20 to 25% of capacity. The business was practically all family flour, as bakers were not in the market, drawing on previous bookings instead. Family flour sales usually pick up in September, but they are not starting off at all briskly this year, due to the short cotton crop and the danger of damage by insects to what there is. Little or no inquiry is coming from Mexico. Operations are holding at 70 to 80% of capacity. Family flour is up 10c sack, and bakery nominally 5c higher. Quotations Sept. 9: family flour, extra high patent $3.85 @4, high patent $3.60@3.75, standard bakers, under .44% ash $3.45@3.60, first clears $2.85@3.

THE NORTHWEST

Minneapolis: The flour market is limited to a little routine carlot inquiry daily, with bids unattractively low. The trade, both family and baking, is well covered ahead. Business on mill books, while not as large as a year ago, is still well over normal, and millers say that any attempt to add to this volume results only in a sacrifice of profits. Consequently, many of them are not aggressive sellers, and are willing to let the low-priced business go to those who want it.

Clears at Minneapolis have strengthened a little, but are still pressing on the market. The thought is often expressed that choice spring clears should be good property to own, for mixing with low protein patents, but thus far attempts to accumulate stocks of them have not proved profitable. Storage charges were too costly.

The government bought some flour last week, and is again asking for bids. Directions are also being received on lend-lease flour bought some months ago, shipment of which was deferred for lack of vessel space. Directions on domestic business have also picked up, so production now is the heaviest for some time.

Bookings by spring wheat mills last week were around 46% of capacity, compared with 137% a week earlier, and 96% a year ago.

Quotations Sept. 11: established brands family flour, enriched $4.30@4.46, high gluten bakery flours $3.54, bakery short patent $3.44, first patent $3.44, standard patent $3.34, fancy clear $3.24@3.34, first clear $3@3.10, second clear $2.70@2.90, whole wheat $3.30@3.54.

Interior mills, including Duluth: The market continues quiet. Current business consists chiefly of small lots for reasonably quick shipment. Buyers are not inclined to look ahead. Shipping directions, however, are coming in much more freely, so production is being stepped up. The millfeed supply is as tight as ever, with prices firm and prompt offerings confined to split cars.

THE CENTRAL WEST

Chicago: Only a moderate amount of business is being done in flour. Buyers continue to hold off and according to most reports, there is only the usual steady small lot buying of one and two cars. Inquiries are fairly numerous, but these do not result in much buying. Shipping directions are fairly free. Some business in family flour is reported, but at the best, it is only fair. Deliveries continue fair. Quotations Sept. 9, sack: spring top patent $3.40@3.57, standard patent $3.30 @3.47, first clear $3@3.29, second clear $2@ 3.19, family flour $4.41; hard winter short patent $3.31@3.57, 95% patent $3.20@3.47, first clear $2.55@3; soft winter short patent $3.40@4.31, standard patent $3.30@4.31, first clear $2.85@3.41.

St. Louis: With present uncertainties existing, both buyers and sellers prefer to watch on the sidelines. However, a fair-sized booking was made last week to the army; also a few scattered lots of 2,000 to 4,000 sacks. Demand for mixed cars is heavy, but due to lack of feed, only a small portion was taken. A parcel for export to South America was placed on the books. Demand for high protein clears is good with little being offered. Low proteins are offered freely, but demand is slow. Jobbers advise new bookings are very light. Bakers are cleaning up old contracts and watching developments. Shipping instructions are light.

Quotations Sept. 9: soft wheat bakers patent $3.31@3.51, straight $3.30@3.45, first clear $2.95@3.15; hard wheat bakers patent $3.61, family short patent $3.51@3.61, straight and 95% $3.26@3.36, first clear $2.95@3.15; spring wheat bakers patent $3.46@3.65, straight $3.36@3.56.

Toledo: There was no particular change for the better in sales of flour by soft wheat millers last week. The continued dullness for such a long period of time seems rather puzzling. Buyers of soft wheat flour are not believed to have provided for their future requirements to an extent comparable with hard wheat flour bookings, and their continued absence from the market has been somewhat mystifying. Millers feel that more activity should occur shortly.

EASTERN STATES

Buffalo: Sales continue somewhat spotty but are considerably in excess of recent volume, and directions continue to reach mills in large numbers. Orders on the books have been reduced very materially. Low protein clears are unchanged, but spring clears are up 10@15c sack. Speculation as to the length of the war against Germany occupies the trade's attention. Foreign trade is routine.

Quotations Sept. 9, in cottons, sacks: spring first patent $3.80, standard patent $3.70, first clear $3.30; hard winter short patent $3.80, 95% patent $3.70, first clear $3.20; soft winter short patent $3.80, first clear $3.

New York: Sales are limited. Buyers become increasingly bearish as wheat markets drop lower. Small bakers and jobbers are taking only occasional scattered cars. Round lots are being taken by the large chain bakers, though not in a volume that is large for them. Interest in southwesterns is poor. Spring wheat clears seem to share in the best demand along with standard patents. Clears are strong and are sold by some mills above the standards of others. Kansas clears are not offered freely and the trade is not well posted on them. Soft wheat flours show no special feature.

Quotations Sept. 9: spring high glutens $3.95, standard patents $3.45@3.70, clears $3.40@3.50; southwestern short patents $3.55@3.70, standard patents $3.45@3.65, clears $3.10@3.20; soft winter straights, Pennsylvania $3.35@3.50, West coast $3.63 @3.69.

Boston: New flour business last week was confined entirely to fill-in lots and the volume was small with spring patents accounting for the bulk of it. The trade is highly conscious of war news and unwilling to buy ahead. Mill agents were generally sympathetic toward this viewpoint and some encouraged their trade to hold off for the present. Added to this was the firm tone in mill quotations. Few in the trade hold short term commitments and actually are not in need of flour at this time. Mill agents impressed their trade with the need of ordering out flour farther in advance, as mills are running about one month behind. Family flour sales were slow, despite an allowance of 25c sack introduced on nationally advertised brands. Quotations Sept. 9: spring high gluten $3.95@4, short patent $3.87@3.93, standard patent $3.77@3.83, first clears $3.47 @3.52; southwestern short patent $3.83@ 3.88, standard patent $3.73@3.78; Texas short patent $3.77@3.83, standard patent $3.67@3.73; soft winter patent $3.82@3.95, straights $3.57@3.67, clears $3.37@3.47.

Philadelphia: Prices showed no important change last week. Apart from the usual fill-in buying, there appeared to be very little interest. Merchants and mill representatives in a good many cases are of the opinion that bakers would be cautious buyers in the near future, due to the possibility of a sudden ending of the European war with its probable impact upon markets generally. In the meantime, shipping directions have picked up slightly in view of returning vacationists and the reopening of some bakeries, and it seems likely that at least a modest improvement in the demand will develop in the near future. Nothing big is looked for, barring unforeseen developments, but any sort of improvement would be welcome in view of the draggy condition for some time past. Quotations Sept. 9: spring wheat short patent $3.75@3.80, standard patent $3.65@3.70, first spring clear $3.30@3.40; hard winter short $3.55@3.60, 95% $3.45@ 3.50; soft winter straight, nearby $3.25 @3.35.

Pittsburgh: Flour buying was very slow in the tri-state area last week. There was no indication that bakers would be interested in any large-sized orders of wheat before a more detailed picture of the effects of the size of the new wheat crop became more clear. However, one small flurry of family flour buying came from feed houses and flour distributors who were fairly well down in flour stocks. They were looking ahead for the colder weather

GRAIN FUTURES—CLOSING PRICES

WHEAT

Closing prices of grain futures at leading option markets, in cents per bushel:

	Minneapolis		Chicago		Kansas City		Seattle		Duluth
	Sept.	Dec.	Sept.	Dec.	Sept.	Dec.	Sept.	Dec.	Sept. Dec.
Sept. 5	149½	146⅛	154⅛	151	148¼	145½	145	....	155 152
Sept. 6	148⅝	144	153¼	148⅝	149¼	142½	145	....	150½ 148
Sept. 7	149⅝	145	154⅝	149⅞	149½	144	144	....	150½ 148¾
Sept. 8	150	145⅝	154⅝	150¾	149⅝	144⅞	144	....	150¾ 149
Sept. 9	151	145	155	150¼	149⅝	144⅝	144	....	150¾ 149
Sept. 11 ...	151½	146⅝	156⅝	151⅝	150	146½	....	....	152 150

	CORN						OATS			
	Minneapolis		Chicago		Kansas City		Chicago		Minneapolis	
	Sept.	Dec.	Sept.	Dec.	Sept.	Dec.	Sept.	Dec.	Sept.	Dec.
Sept. 5	....	....	....	....	107⅛	103⅝	62¾	60¾	59¾	58½
Sept. 6	....	....	....	....	107⅛	103½	58¾	57½	56⅞	56
Sept. 7	....	....	....	....	107⅝	104¼	59⅝	57¾	52	54
Sept. 8	....	....	....	....	106¼	103¼	57⅛	56⅛	54¾	53⅜
Sept. 9	....	....	....	....	105¾	102⅝	56	55⅝	54¼	54
Sept. 11 ...	....	....	....	....	106⅝	103⅞	56½	57⅛	56⅛	55½

	RYE				FLAXSEED				BARLEY	
	Chicago		Minneapolis		Minneapolis		Duluth		Minneapolis	
	Sept.	Dec.	Sept.	Dec.	Sept.	Dec.	Sept.	Dec.	Sept.	Dec.
Sept. 5	100¾	101	99¼	98⅝	310	310	310	....	95	....
Sept. 6	96⅝	96½	94¾	94⅝	310	310	310	....	91¾	....
Sept. 7	96	96⅜	94⅛	94	310	310	310	....	90⅝	....
Sept. 8	94⅝	95⅜	93⅜	93⅜	310	309¼	310	....	89	....
Sept. 9	94¼	95	93	93	310	308	310	....	87	....
Sept. 11 ...	96¼	96⅞	95¼	95¼	310	307½	310	....	90	....

SUMMARY OF MILLFEED QUOTATIONS

Week-end millfeed quotations, summarized from the market reviews, are based on carload lots, prompt delivery, per ton, packed in 100-lb sacks, f.o.b. at indicated points. These prices are ceiling prices. Where a range is given the low represents the mill ceiling and the high the jobbers' ceiling; the single quotations are mill ceilings:

	Chicago	Minneapolis	Kansas City	St. Louis	Buffalo
Spring bran	$39.80@40.30	$....@37.75	$....@....	$....@....	$....@41.55
Hard winter bran	39.80@40.30	....@....	36.50@37.00	38.97@39.47	....@....
Soft winter bran	....@....	....@....	....@....	....@....	....@....
Standard middlings*	39.80@40.30	....@37.75	....@....	38.97@39.47	....@41.55
Flour middlings†	39.80@40.30	....@37.75	36.50@37.00	38.97@39.47	....@41.55
Red dog	39.80@40.30	....@37.75	....@....	....@39.47	....@41.55

	Baltimore	Philadelphia	Boston	Cleveland	Nashville
Spring bran	$44.64@45.14	$....@45.34	$....@46.17	$....@42.99	$....@....
Hard winter bran	44.64@45.14	....@45.34	....@....	....@42.99	....@....
Soft winter bran	....@....	....@....	....@....	....@....	43.30@44.30
Standard middlings*	44.64@45.14	....@45.34	....@46.17	....@42.99	....@....
Flour middlings†	44.64@45.14	....@45.34	....@46.17	....@42.99	43.30@44.30
Red dog	44.64@45.14	....@45.34	....@46.17	....@42.99	....@....

	Spring bran	Shorts	Middlings
Toronto	$....@29.00	$....@30.00	$....@33.00
‡Winnipeg	....@28.00	....@29.00	....@....

*Brown shorts. †Gray shorts. ‡Fort William basis.

A SUMMARY OF FLOUR QUOTATIONS IN LEADING MARKETS

Week-end flour quotations, per sack (cwt), packed in 100 lbs. (Canadian quotations per bbl of 196 lbs.) All quotations on basis of carload lots, prompt delivery.

	Chicago	Minneapolis	Kansas City	St. Louis	Buffalo	New York	Baltimore	Philadelphia	Boston	Cleveland	†Nashville
Spring first patent	$3.40@3.57	$....@3.44	$....@....	$3.46@3.65	$....@3.80	$....@3.95	$....@....	$3.75@3.80	$3.87@3.93	$3.60@3.70	$....@....
Spring standard patent	3.30@3.47	....@3.34	....@....	3.36@3.56	....@3.70	3.45@3.70	....@....	3.65@3.70	3.77@3.83	3.50@3.60	....@....
Spring first clear	3.00@3.29	3.00@3.10	....@....	....@....	....@3.30	3.40@3.50	....@....	3.30@3.40	3.47@3.53	3.35@3.50	....@....
Hard winter short patent	3.31@3.57	....@....	....@3.25	....@3.61	....@3.80	3.55@3.70	....@....	3.55@3.60	3.83@3.88	3.60@3.74	....@....
Hard winter 95% patent	3.20@3.47	....@....	....@3.20	3.26@3.36	....@3.70	3.45@3.65	....@....	3.45@3.50	3.73@3.78	3.45@3.60	....@....
Hard winter first clear	2.55@3.00	....@....	2.45@2.60	2.95@3.15	....@3.20	3.10@3.20	....@....	....@....	....@....	3.10@3.34	....@....
Soft winter short patent	3.40@4.31	....@....	....@....	3.31@3.51	....@3.80	....@....	....@....	....@....	3.82@3.95	4.17@4.35	....@4.78
Soft winter straight	3.30@4.31	....@....	....@....	3.30@3.46	....@....	3.25@3.69	*....@....	*3.25@3.35	3.57@3.67	3.40@3.55	....@....
Soft winter first clear	2.85@3.41	....@....	....@....	2.95@3.15	....@3.00	....@....	....@....	....@....	3.37@3.47	3.05@3.25	4.50@4.65
Rye flour, white	2.60@2.73	3.65@3.75	....@....	....@3.11	....@3.05	2.70@2.85	....@....	2.75@2.95	....@....	2.70@3.05	....@....
Rye flour, dark	2.24@2.42	2.38@3.40	....@....	....@2.61	....@2.55	....@....	....@....	....@....	....@....	2.70@2.95	....@....
Semolina No. 1	....@3.75	....@3.62	....@....	....@3.99	....@3.98	4.00@4.03	....@....	....@4.03	....@....	....@....	....@....

	Seattle (98's)	S. Francisco
Family patent, 50's.	$....@4.12	$....@....
Soft winter straight	....@....	....@....
Pastry	....@2.96	....@....

Standard patent—	Seattle	San Francisco
Dakota	$....@....	$....@....
Montana	....@3.57	....@....

	Toronto	**Winnipeg
Spring top patent‡	$....@5.05	$....@5.30
Spring second patent‡	....@4.40	....@4.80
Spring first clear‡	....@3.30	....@....

	Toronto	**Winnipeg
Spring exports‡	....$9.42	....
Ontario 90% patents‡	.... 6.25	....

*Includes near-by straights. †Nashville prices basis f.o.b. Ohio River points for soft winter wheat flour. **In cottons, Fort William basis. ‡Second-hand cottons. §98-lb cottons. §280-lb cottons.

and the possible effect of women going back home soon, if European war events kept up at their present swift advance toward victory.

Quotations rose firmly. Wheat in the better and higher grades hit ceilings and held firmly. However, on all sides it was stated that when any sales were made, cuts of 5@10c sack were necessary to close the deals. Shipping directions were good. Bread sales were increasing owing to continued cool weather.

Quotations Sept. 9: hard winter bakers short patent $3.70@3.80, straight $3.60@3.70, high gluten $3.88@3.90, first clear $3.15@3.25; spring bakers short patent $3.72@3.80, standard $3.62@3.70, high gluten straight $3.90, first clear $3.45@3.50; soft winter bakers cake flour $4.50@4.60, intermediate $3.82@3.92, straight $3.59@3.69, Pacific coast $3.67@3.73.

The Rodney Milling Co.
13,000 CWTS CAPACITY
KANSAS CITY, MISSOURI

"Heart of America" FLOUR

CHICAGO OFFICE:
Kelly Flour Co., 919 N. Michigan Ave.
BOSTON OFFICE:
Seaboard Allied Milling Corporation
1209 Statler Bldg.

MILLING EXECUTIVES

We offer proficient services in setting up factory cost systems, material routings and sequence of movement.

★

ARTHUR L. CHANDLER & CO.
Management Counsellors
Merchants Exchange ST. LOUIS, MO.

Victor-Champion-Frost King-Headliner
Family Flour De Luxe
THE CRETE MILLS
CRETE, NEB.

THE WALNUT CREEK MILLING CO.
Millers of Fine, Country-Milled Kansas Wheat Flours Since 1877
GREAT BEND, KANSAS

A Real Gem in Flour
KANSAS DIAMOND
Made by
Arkansas City Flour Mills Co.
Arkansas City, Kansas
Daily Capacity 2,000 bbls

"RUSSELL'S BEST"
"AMERICAN SPECIAL"
Our mill is located in the high protein wheat district of central western Kansas, and secures most of its wheat directly from growers.
RUSSELL MILLING CO., Russell, Kansas

THE SOUTH

New Orleans: The market is still slow. Northern spring wheat flours are selling at ceiling prices, with the best sales in southwestern hard wheat types. Bread, cake, cracker and macaroni production are good, making for good shipping directions. Quotations: spring family patent $3.64, first patent $3.44, standard patent $3.34, fancy clear $3.25@3.30, first clear $3.25, second clear $3.15; hard winter family patent $3.75, bakers short patent $3.45@3.60, first clear $2.90@3.10, soft wheat short patent $4.25@4.45, straight $3.90@4.15, first clear $3.55@3.70.

Nashville: Business is limited to a few scattered lots of the better grades, both soft and hard, for 30- to 45-day shipment, with no forward bookings at all. Buyers are very cautious and indicate they are expecting cheaper prices with the ending of the European war, which they expect within the next 30 days. Also, they feel it inadvisable to carry large stocks during hot weather. Cooler weather last week, brought about by the recent rains, is beginning to stimulate a little more interest. Shipping directions are better than for some time. Prices are unchanged. Quotations Sept. 9: soft wheat bakers and pastry $3.70, high patent $4.75, extra protein content $4.85, short patent family $5.05@5.15, standard patent $4.95@5.05, straight $4.70@4.85, clear $4.50@4.65.

PACIFIC COAST

Seattle: Flour markets remain unchanged, with little in the way of new business reported. The government asked Pacific coast mills to offer as much as 10,000,000 lbs of bakers enriched for October-November shipment. Sept. 11 was the closing date for offers. Coast mills have been booking some government business right along and will no doubt submit offers for the entire amount. Interior mills, with midwestern business on their books, are having some difficulty obtaining cars to move the flour. In some instances, due to lack of storage, some curtailment in operations will result. Quotations Sept. 9, carlots, f.o.b. Seattle or Tacoma: family patent enriched, 50's $4.12, bakery pastry, 100's $2.96, blue stem, 100's $3.18, Montana hard wheat, 100's $3.57.

Portland: The government asked for offers on approximately 10,000,000 lbs of flour for the Hawaiian Islands last week, with offers up to midnight Sept. 11. This called for about 8,000,000 lbs of bakers enriched, with some cake, pie and cracker flour. October-November shipment was specified generally, with some flour for immediate delivery. Offers on millfeed covered by the flour also were requested. This was the only news last week. Mills are finding it difficult to interest flour buyers, but they have sufficient old orders on the books to carry them along for a considerabe period. Domestic business, on the whole, is not large, but mill grindings are very good on old bookings.

Quotations Sept. 9, f.o.b. mill, cotton sacks: all Montana $3.67, high gluten $3.63, blue stem topping $3.47, cake $3.85, pastry $3.08, pie $3.08, fancy hard wheat clears $3.40, whole wheat, 100% $3.43, graham $3.06, cracked wheat $3.08.

CANADIAN MARKETS

Toronto-Montreal: Domestic trade in spring wheat flour is brisk and sales are larger than in prewar years. Mills are booked with orders from the British Ministry of Food up to end of November and more business would be placed if the flour could be turned out. The British West Indies are also booked substantially and so is Newfoundland. Prices remain at ceiling levels in the domestic market and export values are also stable. Quotations Sept. 9: domestic top patents $5.05 bbl, seconds $4.40, bakers $4.30, in 98's cotton, mixed cars, track, Toronto-Montreal freights, add 10c extra where cartage is performed; for export, government regulation flour $9.42 per 280 lbs, f.a.s., winter ports, September-October, seaboard.

The winter wheat flour market is quiet. Domestic buyers have covered nearby requirements and export business is dormant. The equalization fee of 95c bbl announced by the Canadian Wheat Board, which must be added to the price of winters for export, makes it impossible to sell this flour in the British West Indies. Some sales have been made to biscuit manufacturers in Newfoundland, but the quantities are small. Prices are at ceiling levels. Quotations Sept. 9: domestic $5.60 bbl, in second hand cottons, Montreal freights; for export $6.25 bbl, in cotton bags, seaboard, to which must be added the equalization fee of 95c bbl.

Demand for Ontario winter wheat is slow. All available storage space is filled with this wheat and farmers are unable to make further deliveries until it begins to clear out. The price is at the ceiling. Quotations Sept. 9: $1.26 bu, Montreal freights, which is equivalent to $1.12@1.14 bu, f.o.b. shipping points, according to freights.

Winnipeg: Export business in flour was difficult to confirm last week, although it was understood that some small lots had been sold to the West Indies. Domestic trade continued good and mills were operating full time. Some mills are booked up to early December. Quotations Sept. 9: top patent springs for delivery between Fort William and the British Columbia boundary $5.30 in cottons, seconds $4.80, second patents to bakers $4.60.

Vancouver: The trend of events in the Pacific has raised the hopes of Canadian flour exporters that before many months the great markets of the Philippines will again be opened to flour moving through this port. So far nothing of an official nature has developed to warrant any early resumption of shipments to that area, which before the war, was one of the chief Canadian customers in the Pacific, but the outlook is getting brighter all the time. However, the question of shipping space will enter into the picture, and, until tonnage is allocated, Canadian exporters will have to continue to wait, hopefully.

A very good demand continues in the domestic trade in this area for hard wheat flour and supplies are coming out in fair volume. This is partly due to the fact that many of the large western Canadian mills have had time to make much needed overhauls and can handle a fair volume of civilian orders in addition to the mounting war contracts. Prices are unchanged at ceiling levels, cash car quotations on the basis of 98's cottons being $5.40 for top patents, $5 for bakers or second patents and $4.90 for vitamin B, which is finding only a limited sale here.

The soft wheat flour supply is improving. With a bumper harvest in Ontario, eastern mills are routing more and more pastry flour to this area, where a heavy demand waits. Prices are firm to the trade at $7.50.

RYE PRODUCTS

Minneapolis: Rye futures declined 8c bu last week and millers reduced their quotations on flour 23c sack. However, buyers' ideas as to values more than kept pace with the break in grain and, it is said, trades were being put through in New York at 20@25c sack under mill asking prices. The few scattered carlots sold were for prompt shipment. Jewish holidays are at hand, and this period usually means a lull in rye flour buying. Shipping directions have slowed up very materially. Pure white rye flour $2.65@2.75 sack, in cottons, f.o.b. Minneapolis, pure medium $2.55@2.65, pure dark $2.38@2.40.

Chicago: Rye flour business continues practically unchanged, with only the usual small lot buying. Shipping directions are fair. White patent rye $2.60@2.73, medium $2.50@2.63, dark $2.24@2.42.

St. Louis: Prices are off 35c sack. Sales and shipping instructions are improved. Pure white $3.11, medium $3.01, dark $2.61, rye meal $2.86.

Buffalo: Demand is fair, the trend is steady and the supply is ample; cottons: white $3.05, medium $2.95, dark $2.55.

New York: Sales of rye flour are in limited volume as prices reach new low levels. Quotations: pure white patents $2.70@2.85.

Philadelphia: The market for flour turned sharply lower last week, with offerings more liberal and buyers indifferent. White patent $2.75@2.95.

Pittsburgh: Rye prices fell to a new low last week. However, there was a slight increase in rye flour sales among bakers; rye flour, fancy white $2.90@2.94, medium $2.80@2.84.

Portland: Pure dark rye $3.51, medium dark $3.62, Wisconsin pure straight $3.95, Wisconsin white patent $4.11.

OATMEAL MARKETS

Toronto-Montreal: Rolled oats and oatmeal are moving slowly in the domestic market, but export orders have been keeping these mills busy. Ceiling prices prevail. Quotations: rolled oats $3.15 bag of 80 lbs, cotton, mixed cars; oatmeal, 98-lb jutes, $3.85 f.o.b. Toronto or Montreal.

Winnipeg: Rolled oats and oatmeal are in poor demand. Supplies are moderate. Quotations: rolled oats, 80-lb sacks $3.25 in the three prairie provinces; oatmeal, in 98-lb sacks, 20% over rolled oats.

Minneapolis: Rolled oats were quoted on Sept. 11 at $4.75 per 100 lbs, bulk; 20-oz packages $2.59 case, 48-oz packages $2.82.

Millfeed Receipts and Shipments

Receipts and shipment of millfeed at the principal distributing centers for the week ending Sept. 2, in tons, with comparisons:

	Receipts		Shipments	
	1944	1943	1944	1943
Minneapolis ..	...	...	18,780	18,330
Kansas City ..	475	850	3,950	5,550
Philadelphia ..	260	460	...	...
Milwaukee ...	90	...	3,450	4,590

IF YOU NEED
CHEMICAL ANALYSES ★ TEST BAKES
PRODUCT RESEARCH ★ VITAMIN ASSAYS
LABORATORY AND RESEARCH DIVISION
THE W. E. LONG COMPANY
155 N. Clark Street Chicago 3, Illinois

WANT ADS

Advertisements in this department are 5c per word; minimum charge, $1. (Count six words for signature.) Situation Wanted advertisements will be accepted for 2½c per word, 50c minimum. Display Want Ads $4 per inch per insertion. All Want Ads cash with order.

HELP WANTED

SECOND MILLER WANTED—MAN WITH sufficient experience to do the work. Pay is good and considerable overtime. Address 6896, The Northwestern Miller, Minneapolis 2, Minn.

WANTED — CEREAL CHEMIST WITH knowledge soft and hard wheats. 1,000-bbl central states mill. Well equipped laboratory. Address 6927, The Northwestern Miller, Minneapolis 2, Minn.

W E L L ESTABLISHED, SUCCESSFUL northwestern spring wheat milling organization has one, perhaps two, openings in central states, and solicits applications from salesmen of recognized ability with worthwhile trade connections in lower Michigan, Indiana, Ohio and western Pennsylvania. Necessary complete details, including references, be given in first letter; applications treated confidentially. Our salesmen are aware of this advertisement. Address 6926, The Northwestern Miller, Minneapolis 2, Minn.

SITUATIONS WANTED

WANTED BY AN EXPERIENCED MILLer a job as head miller, 100- to 200-bbl mill. Single man, no dependents, age 61 years, available on short notice after Oct. 1. Address 6917, The Northwestern Miller, Minneapolis 2, Minn.

HEAD MILLER, WITH KNOWLEDGE considerably above average and ability to prove it, open for permanent employment; now in Minneapolis; skilled in reflowing, maintenance, close yields, low ash flours, feeds, etc. Address 6900, The Northwestern Miller, Minneapolis 2, Minn.

MACHINERY WANTED

WANTED—BRIGHTWOOD BOX MACHINE —Pneumatic scale packaging machine; two flour blenders. Address 4970, The Northwestern Miller, Minneapolis 2, Minn.

WANTED — SIFTERS: WOLF GYRATOR, old or new style; Richmond Gyro Whip; Schultz O'Neill Limited Pulverizer, preferably large size. Address 6919, The Northwestern Miller, 23-25 Beaver Street, New York 4, N. Y.

MILLS FOR SALE

FOR SALE — DIESEL POWER FLOUR mill at Battle Lake, Minn. Best spring wheat available locally. Contact owner through 6914, The Northwestern Miller, Minneapolis 2, Minn.

FOR SALE OR LEASE, COMPLETE wheat, corn and feed mill in northeast Georgia, water power; 50-bbl midget Marvel, 4 corn rocks, 2 feed mills, 100 h.p. turbine; business is good. O. W. Haygood, Athens, Georgia.

BUSINESS OPPORTUNITIES

BARGAIN IN MODERN 300-BBL FLOUR mill, feed mill, and elevator in fine hard wheat section of Southwest. Large local wheat receipts. Cheap municipal electric power. Business established for years, serving bakers, wholesalers and retailers. M.I.T. privileges, 300 feet trackage, 85,000-bu storage. Bonded warehouse. Nice county seat town of 3,500. Good schools and churches. Address 6902, The Northwestern Miller, Minneapolis 2, Minn.

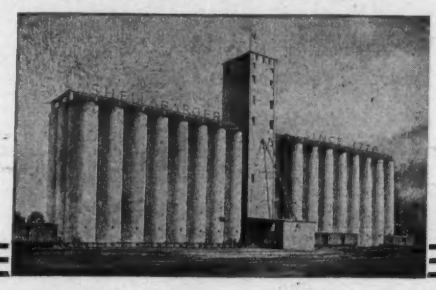
The BEARDSTOWN MILLS
SPRING WHEAT
KANSAS WHEAT
SOFT WHEAT
FLOURS
CRITIC FEEDS
SCHULTZ, BAUJAN & CO.
BEARDSTOWN, ILLINOIS

Shellabarger MILLING WHEAT

With our houses full of fine, select milling wheat, we urge you again to buy for quality out here in the wheat fields where we can assure you maximum values and not merely minimum grades.

★ ★

SHELLABARGER
MILL & ELEVATOR CO.
SALINA, KANSAS



COUNTRY RUN
VIRGIN WHEAT
from
Country Elevator to Your Mill
Kansas Official Grades
Your Good Mill Weights
•
Write - Wire - Phone
EBERHARDT
AND
SIMPSON
SALINA, KANSAS

"DURAMBER"
SEMOLINA
FANCY No. 1
Milled from Carefully Selected
AMBER DURUM WHEAT
AMBER MILLING CO.
MINNEAPOLIS
Cable Address: "AMBERMILCO"

"OLD SQUIRE"
Always is good flour. Pays no attention to ups and downs and this and that.
Just always GOOD FLOUR
Moore-Lowry Flour Mills Co.
Board of Trade Bldg. Kansas City, Mo.

ROYAL FLUFF-EAT-A
It pays to pick the right cake flour! Average flours really cost more than top quality flours like ROYAL FLUFF-EAT-A, which produces more finished cake per pound of flour. You get a richer, moister, longer-keeping cake with ROYAL FLUFF-EAT-A.
VOIGT MILLING CO.
Grand Rapids, Mich. Telephone 85991

STANDARD MILLING COMPANY
Millers of
• CERESOTA • ARISTOS
BAKERY FLOURS

Chickasha Milling Co.
Capacity 800 bbls — CHICKASHA OKLA. — Cable Address "Washita"
Manufacturers of High-Grade Hard Wheat Flour
Foreign and Domestic Trade Solicited
Member Millers' National Federation

Farmers & Merchants Milling Co.
Quality Flours
Mill at Glencoe, Minn. — *Sales Office* Minneapolis

VANITY FAIR
TELEPHONE
MARITIME
INVADER
(HIGLUTEN)
"MASTER MILLED" Spring Wheat Flour
CANNON VALLEY MILLING COMPANY
Chamber of Commerce Minneapolis

Let HENKEL'S EXTRA FANCY *Supply Your*
WHOLE WHEAT NEEDS
★
Buy War Bonds
10 kinds and granulations to choose from.
THE HENKEL FLOUR MILLS
DETROIT MICHIGAN

DOBRY'S BEST
BEST OF THE WEST
DOBRY FLOUR MILLS, Inc.
YUKON, OKLAHOMA

King Milling Company
High Grade Michigan Soft Wheat Flour, Plain and Self-Rising
Successful Millers for Fifty Years
LOWELL, MICHIGAN

MILLFEED MARKETS

Minneapolis: Spring wheat millers say they can discern no signs of weakness in millfeed, with plenty of buyers still willing to contract at full ceilings for shipment through January. They are not disposed, however, to sell far in advance, for the reason that they are still unable to care promptly for old carlot flour customers who also want straight cars of millfeed and have had to be satisfied with split cars to date. Scattered deferred sales are reported occasionally, but these are exceptional. Demand is as keen as ever, with millfeed still the cheapest item on the list. The ceiling here is $37.75.

Oklahoma City: Brisk demand and inadequate supplies are reported, no change in prices. Quotations, burlap bags, carloads, for southern deliveries: bran, mill run and shorts $1.90@1.95 sack; for northern deliveries: $1.85@1.90.

Wichita: The supply remains inadequate for the demand. Quotations, basis Kansas City: bran and shorts $36.50 ton.

Hutchinson: Demand is urgent, the trend is firm and the supply is inadequate; bran, mill run, gray shorts $36.50@37.50 (Kansas City basis).

Fort Worth: The situation is as tight as ever, with practically no carlot offerings. Production is going in mixed cars with flour: bran and gray shorts $43.20, in mixed cars, del. TCP or group 3.

Toledo: All millfeed is still selling at ceiling levels, $42.57 for carlots and $43.57 in mixed cars. There is no immediate prospect of any change, despite somewhat increased production, since demand is greater than the supply, and it is still necessary to allocate the output among customers and established trade.

Buffalo: While output has increased somewhat, buyers eagerly absorb all offerings, and still their wants are unsatisfied. The trend is firm. All varieties $41.55, straight carlots, f.o.b. Buffalo.

Boston: Mills offered more freely last week for deferred shipments at ceiling prices, but the trade does not have enough faith in the market to make commitments on that basis. Millfeeds for immediate shipment remain tight. Coarse grains other than corn and wheat for feed are more plentiful. Quotations remain at ceilings. Spring bran, midds., mixed feed and red dog $46.17.

Philadelphia: Demand is fair, the trend is firm and the supply is small: standard bran, pure spring, hard winter, soft winter, standard midds., flour and red dog, all $45.34 ton.

Pittsburgh: Oats and barley were offered freely last week. Prices fell on both and the trade bought freely. Dealers had only limited amounts of millfeed to offer at ceiling prices of $44.10@44.60 ton.

Nashville: Demand continues exceptionally good, but the supply is a little more plentiful and offerings are sufficient for the demand. Prices remain at ceilings; bran and shorts $43.30@44.30 ton.

Seattle: The supply is fair; $36.50.

Portland: Mill run, bran, shorts, midds., $36.50 ton.

Ogden: Millfeed business is excellent, with demand good locally and from the west coast. Quotations: red bran and mill run, blended, white and midds., $36.30, carload lots, f.o.b. Ogden. Denver prices: red bran and mill run, blended, white and midds., $38 ton, ceiling. California prices: red bran and mill run, blended, white and midds., $42.08, carlots, f.o.b. San Francisco, with Los Angeles prices up $1, ceiling.

Toronto-Montreal: Demand is excellent. Production is at the highest point in history, but offerings are inadequate for requirements. Its cheapness at ceiling prices makes millfeed popular. Only small amounts occasionally go for export. Quotations: bran $29, shorts $30, midds. $33 ton, net cash terms, bags included, mixed or straight cars, Montreal freight basis (ceiling prices).

Winnipeg: Demand is keen. All supplies are moving freely, with the bulk going to eastern Canada. Sales in the prairie provinces are insignificant. Quotations: bran $28, shorts $29, Manitoba and Saskatchewan, Alberta bran $25.50, shorts $26.50, small lots ex-country elevators and warehouses $3 extra.

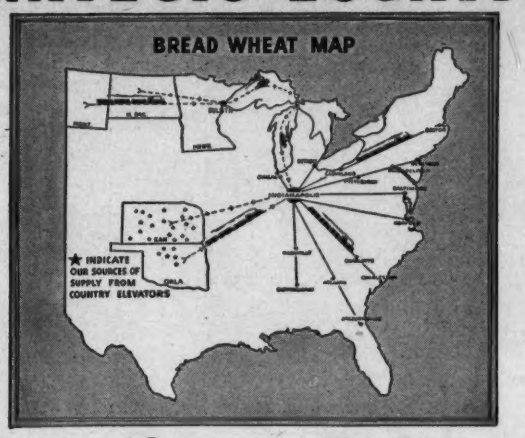
Vancouver: The trend is steady. Domestic demand continues heavy, despite heavy farm feed production. Poultry raisers account for a large share of the current demand, with prospects of increased sales in the fall months. Supplies in dealers' hand here are still light, with western mills not inclined to entertain much forward business. Prices on a cash car basis: bran $29.80, shorts $30.80, midds. $33.80.

Bonded Grain in the United States

Bonded grain in the United States Sept. 2, 1944, in bushels (000's omitted):

	Wheat	Oats	Rye	Barley
Baltimore	4,102	..	..	..
Boston	654	..	..	..
Buffalo	3,475	1,385	696	2
Afloat	614	574	..	91
Chicago	480	..	..	..
Afloat	..	..	..	..
Fort Worth	693	..	..	..
Lakes	237	..	..	..
New York	3,739	..	..	..
Afloat	269	..	..	..
Philadelphia	950	..	..	..
Totals	14,213	1,959	696	93
Aug. 26, 1944	14,194	1,614	948	2
Sept. 4, 1943	7,254	866	111	936

STRATEGIC LOCATION



ACME-EVANS COMPANY
INDIANAPOLIS, IND.
Over a Century of Milling Progress
• *Since 1821* •

SAPPHIRE FLOUR
accepts your test

A flour consumer—either baker or housewife—cannot expect, except in rare instances, to be informed regarding the intricacies of modern flour production, but base their judgment of the quality of the product upon the results it gives them in the consumptive uses to which it is put, which after all is the final test.

SAPPHIRE FLOUR has always accepted this test and been willing to rest the judgment of its quality upon it. No product can be superior to the raw material from which it is produced. Flours milled from composite wheat types drawn from territories having widely varied soil and climatic conditions must of necessity reflect such in a composite quality. We claim for Montana flours milled in Montana that they are distinctive in quality because the wheat from which they are produced is distinctive.

Claims for any product are meaningless unless they can be fully substantiated by successful use in the hands of the ultimate consumer.

MONTANA FLOUR MILLS CO.
General Offices
GREAT FALLS, MONTANA

"Hi-line Wheat" MONTANA SAPPHIRE FLOUR

We have contributed to the American Bakers' Foundation

WOLF'S PREMIUM FLOUR

As fine a flour as you will find milled from the finest Turkey wheat in the heart of Kansas in

An Independent Mill

WOLF MILLING CO.
ELLINWOOD, KANSAS

The Standard Others Strive to Reach

WHITE SWAN
FLOUR
SPRINGFIELD MILLING CORPORATION
MINNEAPOLIS • MINNESOTA

HIGH GLUTEN FLOURS
For Bakers
The Morrison Milling Co.
Denton, Texas
Emphatically Independent

Mother Hubbard Flour
FOR QUALITY, FLAVOR AND ECONOMY
Hubbard Milling Co.

LUCKY GLUTEN FLOUR
Prompt Delivery
Uniform High Quality
FEDERAL MILL, Inc.
Lockport, N. Y.

An EXTRA HOUR OF DOUGH STABILITY WITH WISDOM DIA-GLUTIN FLOUR

A new development which greatly extends fermentation tolerance. Provides more time for "cutting over" or giving dough extra punches. If you want a flour which will stand abuse, write or wire

NEBRASKA CONSOLIDATED MILLS COMPANY
1521 N. 16th St. OMAHA, NEBRASKA

FAMILY PATENTS
White Crest Red Crest
Cake and Pastry Flours
J. C. L.
Sponge Cracker Flour
The J. C. Lysle Milling Company
Leavenworth, Kansas

Two of the Nation's Finest Flours
"AMERICAN EAGLE"
"THE ADMIRAL"
The H. D. LEE FLOUR MILLS CO.
Salina, Kansas

PAGE'S FLOURS
THE THOMAS PAGE MILL CO.
Topeka, Kansas

A New Brand on the Milling Horizon
BIRCHMONT
Typically Minnesota—a short patent that will stand comparison
— and —
WHITE GOLD
(Standard Patent)
ST. CLOUD MILLING CO.
ST. CLOUD, MINNESOTA
300 Bbls Capacity

SEARCHLIGHT
SHORT PATENT FLOUR
Only highest grades spring wheat used; produces excellent bread of fine flavor. Ask for samples.
WISCONSIN MILLING CO.
Menomonie, Wis.

ACME RYE
A HIGH QUALITY WISCONSIN RYE FLOUR
All Grades
FISHER-FALLGATTER MILLING CO.
WAUPACA WISCONSIN

Bowersock Mills & Power Co.
LAWRENCE, KANSAS
ZEPHYR FLOUR
AS FINE A BAKING FLOUR AS A BAKER CAN BUY AT ANY PRICE
Established 1874 1,500 BARRELS DAILY

KING MIDAS FLOUR
KING MIDAS FLOUR MILLS
Minneapolis, U. S. A.

BLAIR'S Certified FLOUR FEEDS
BLAIR MILLING CO., Atchison, Kans.

Lyon & Greenleaf Co., Inc.
MILLERS OF
High Grade Soft Winter Wheat Flour
Plain and Selfrising
LIGONIER, IND. NORFOLK, VA.

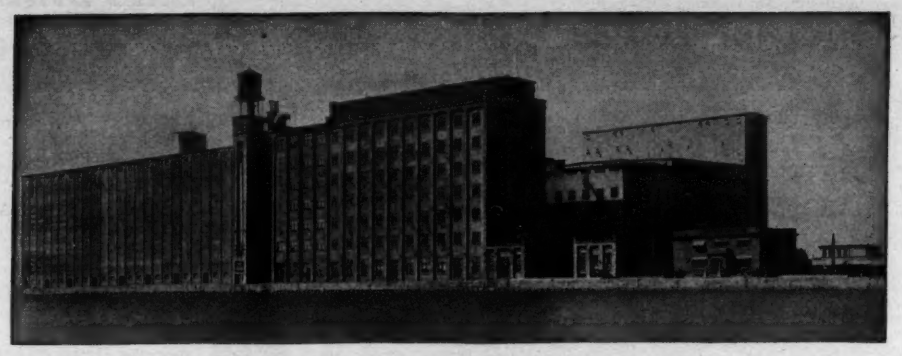
TRIPLE XXX FINE GROUND
ALFALFA MEAL
Ideal for Poultry Mashes
THE DENVER ALFALFA MILLING & PRODUCTS CO. Merchants Exchange, Lamar, Colo. St. Louis, Mo.

"DIAMOND D"
A High Grade Baker's Spring Patent
Milled Under Laboratory Control from Montana Spring Wheat
Sheridan Flouring Mills, Inc.
SHERIDAN, WYOMING

The Williams Bros. Co.
Merchant Millers KENT, OHIO, U. S. A.
Specialists Ohio Winter Wheat Flour
All our wheat is grown on "Western Reserve" and bought from the growers at elevators we own and operate.

CANADA'S LARGEST FLOUR EXPORTERS

Head Office— Toronto, Ontario



Cable Address— "Mapleshaw," Toronto, Canada

PORT COLBORNE MILLS—CAPACITY 12,000 BBLS. DAILY

Maple Leaf Milling Co. Limited.

EXPORT OFFICES:
TORONTO NEW YORK VANCOUVER

MILLS AT
TORONTO, ONTARIO MEDICINE HAT, ALBERTA PORT COLBORNE, ONTARIO

QUALITY UNIFORMLY MAINTAINED SINCE 1887

Lake of the Woods Milling Co., Limited

Cable Address "HASTINGS" Montreal

ALL CABLE CODES USED

Makers of CANADIAN HARD SPRING WHEAT *Flour*

Owning and Operating
Wheat-Receiving Elevators in Manitoba, Saskatchewan and Alberta

Mills at
Brantford, Keewatin, Medicine Hat

HEAD OFFICE: MONTREAL WESTERN OFFICE: WINNIPEG

Offices:
TORONTO, OTTAWA, QUEBEC, ST. JOHN, N. B., HALIFAX, HAMILTON, BRANTFORD, SUDBURY, LONDON, SAULT STE. MARIE, FORT WILLIAM, KEEWATIN, MEDICINE HAT, PORTAGE LA PRAIRIE, CALGARY, MOOSE JAW, REGINA, EDMONTON, VANCOUVER, VICTORIA

CHOICEST CANADIAN *Hard Spring Wheat*

and perfect milling facilities have placed our products in the van.

BRANDS

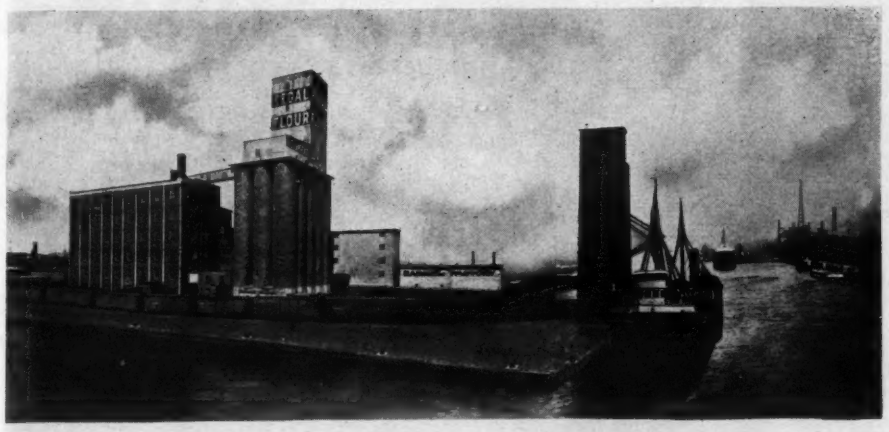
"VICTORY" - "PRAIRIE BLOSSOM"
"WOODLAND" - - "HOMELAND"

THE DOMINION FLOUR MILLS, LTD.

Cable Address: "DOMFLOUR" MONTREAL, CANADA

The St. Lawrence Flour Mills Co., Ltd.

MONTREAL • CANADA



Millers of Canadian
Hard Wheat Flours

"Regal"
"Fleur de Lis"
"National"
"Daily Bread"
"Citadel"

Quality uniformly maintained for over 25 years

WESTERN CANADA FLOUR MILLS COMPANY LIMITED

CABLE ADDRESS: LAKURON

TORONTO, CANADA

SPECIALISTS IN MILLING

PURITY
THREE STARS

STERLING
CANADA CREAM

GREAT WEST • BATTLE • MAITLAND • HURON

All Western Canada Hard Wheat Flours

FLOUR MILLING CAPACITY 9,500 BBLS DAILY

ROLLED OATS AND OATMEAL 400 BBLS DAILY

UNIFORM QUALITY GUARANTEED

JUTE BAGS COTTON

OLDEST ESTABLISHED MANUFACTURERS OF

JUTE **BAGS** COTTON

IN CANADA

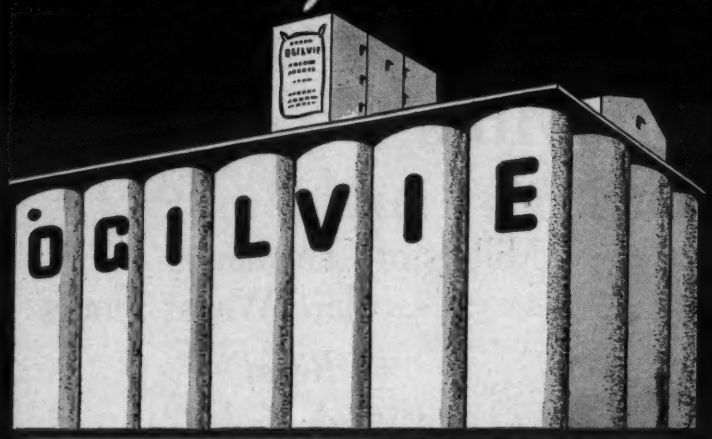
Factories—MONTREAL - TORONTO

The CANADIAN BAG CO., Limited

Head Office: MONTREAL, QUEBEC

JUTE BAGS COTTON

Canada's Oldest and Largest Millers



OGILVIE

- BRANDS -

Flour	*Cereals*
"ROYAL HOUSEHOLD"	"OGILVIE OATS"
"GLENORA"	"WHEAT HEARTS"
"FAMOUS"	"OGILVIE
"BUFFALO"	BLENDIES"

THE OGILVIE FLOUR MILLS COMPANY, LIMITED

HEAD OFFICE, MONTREAL, CANADA

MILLS AT: MONTREAL, FORT WILLIAM, WINNIPEG, EDMONTON and MEDICINE HAT

CABLE ADDRESS: OGILVIE, MONTREAL. ALL CODES USED.

Since 1857

James Richardson & Sons

LIMITED

Grain Merchants Shippers and Exporters

WINNIPEG · CANADA

Export Offices - MONTREAL and VANCOUVER

Cable Address: "JAMESRICH"

GREAT STAR FLOUR MILLS, Ltd.

Successors to Wolverton Flour Mills Co., Ltd.

Canadian Spring and Winter Wheat Flour

"SILVERKING" "GREAT STAR" "WOLF" "KEYSTONE"

Cable Address: "WOLMACO" ST. MARY'S, ONTARIO, CANADA

LAKESIDE MILLING COMPANY, Ltd.

"BLOSSOM *of* CANADA" "YORK" "NORDIC"

Cable Address: LAKESIDE TORONTO, CANADA

IT'S IN THE RECORD *with*

Robin Hood FLOUR

Laboratory Control

Uniformity

Performance

CANADIAN SPRING WHEAT FLOUR

ROLLED OATS

OATMEAL

Robin Hood Flour Mills Limited

Mills and Sales Offices: VANCOUVER · CALGARY · MOOSE JAW · SASKATOON WINNIPEG · TORONTO · HUMBERSTONE · MONTREAL · MONCTON

EASTERN EXPORT OFFICE: MONTREAL · ORIENTAL EXPORT OFFICE: VANCOUVER

Export Flour INSURANCE
"All Risks"
Special Service to Flour Mills on Export and Domestic Ocean and Lake Insurance and Transportation
Thirty-Five Years' Experience in Export Flour Handling
Western Assurance Company
TORONTO, CANADA
F. C. THOMPSON CO., LTD.
Canadian Agents
Royal Bank Bldg., Toronto, Canada
APPLETON & COX, INC.,
American Agents
111 John Street, New York

TELCo
Grain Shippers
Domestic and Export
TORONTO ELEVATORS
LIMITED
Toronto Canada

COATSWORTH & COOPER
LIMITED
C A N D
Grain and Feeds
Exporters
TORONTO, CANADA

SULLIVAN & KENNEDY
Members: Toronto Board of Trade
Winnipeg Grain Exchange
Exporters
Flour. Feed. Seed Grain. Screenings.
Our Specialty: Alfalfa Meal
TORONTO 1, CANADA

CEREAL CUTTERS
Kipp-Kelly Rotary Granulators
Standard the world over for cutting small grains, wheat, hulled oats, etc.
KIPP-KELLY LIMITED
Winnipeg, Manitoba, Canada

TOWN CRIER FLOUR
MIDLAND FLOUR MILLING CO.
2010 Taney Ave. No. Kansas City, Mo.

HARDESTY MILLING CO.
Quality Millers *for* Over Half a Century
Domestic and Export DOVER, OHIO

I-H
QUALITY MILLED FLOURS
Ismert-Hincke Milling Co.
Kansas City, Mo.

Uses for Corn

(Continued from page 4.)

raw material include the mixed-feed manufacturers; the "dry" millers, who make meal, grits, hominy, flakes, feed and oil; the "wet" millers, who manufacture starch, syrup, sugar, feed and oil, and lastly, the makers of alcohol, whisky, butanol and acetone. The quantity of corn entering processing industries is not a big percentage of the total crop, but it is a big percentage of the cash crop that arrives at markets.

Complete data are not available on the commercial or industrial consumption of corn, but it was roughly as follows in 1942-43: Commercial mixed feed manufacturers, 240,000,000 bus; dry millers (commercial and custom), 157,000,000 bus; wet millers, 130,000,000 bus; the distilling and fermenting industry, 56,000,000 bus; breakfast cereal manufacturers, 12,000,000 bus; total, 595,000,000 bus. Of the corn processed by the dry and wet millers and the distillers, from one fourth to one third is returned to the farmer in the form of by-product feeds. All of the mixed feeds are fed to livestock and poultry.

There are over 500 uses for corn products, divided into three general consuming groups—human, livestock and industrial, according to the Corn Industries Research Foundation. Under the caption of uses for humans are corn leaves (tamale wrappers), corn grain, corn meal, flour, grits, cornstarch, syrup, sugar (both crude and refined), corn oil, gluten feed and meal (pharmaceuticals and chemicals, penicillin), hydrol (corn-sugar molasses), lactic acid, butyl alcohol, acetone and ethyl alcohol. Uses for livestock include 21 categories. Industrial uses include corn stalks, cobs, leaves, meal, flour and grits, cornstarch, dextrins, syrup, sugar, oil and free fatty acids, gluten feed and meal, corn oil cake and meal, steepwater (from the wet process method of milling), lactic acid, hydrol, butyl alcohol, acetone and ethyl alcohol.

Milled corn products are necessary for the prosecution of the war. A recent advertisement by a large dextrin manufacturer revealed that over 200 articles or uses were made of adhesives which come from corn from the time a draftee or enlisted man puts on military clothes until he fires a bullet or shell at the enemy. Adhesives are used in fabricating or packaging practically every commodity used by both civilians and the military, many of which are influential in maintaining morale, such as books, surgical dressings, food products, clothing, etc. Many large pieces of equipment require metal castings of aluminum, steel, iron, magnesium, bronze and copper; airplane and truck engines for example. Dextrin is extensively used as a core binder for these castings. Similarly, the non-leaking rubber-covered gas tank of airplanes is molded on a form strengthened with dextrin.

The world's best-dressed and best-equipped soldier, the American doughboy, requires 120 lbs of cotton fabrics per man per year—from underwear, socks, and leggings to barrack bags, from balloon fabric to air hose, and from bulletproof tanks to powder bags. Every yard of cotton cloth used in producing these goods requires corn starch and dextrin in their manufacture.

CANADIAN-BEMIS BAG COMPANY LIMITED
Manufacturers and Importers
COTTON JUTE
AND
PAPER BAGS
BURLAPS & TWINES
WINNIPEG — VANCOUVER

Canadian Hard Spring Wheat
450 Elevators in Manitoba, Saskatchewan and Alberta.
High Test Country Run
United Grain Growers, Ltd.
Winnipeg, Manitoba

R. C. PRATT
Exporter
FLOUR, CEREALS, FEEDS
68 King Street, East
TORONTO, CANADA

SPILLERS LIMITED
Millers of the
HIGHEST QUALITY FLOUR
and Manufacturers of
PROVENDER AND BALANCED RATIONS
FOR ALL CLASSES OF FARM STOCK
Head Office:
40, St. Mary Axe, E. C. 3.
LONDON, ENGLAND
Cables:
"Milligroup"
London

ROBIN'S BEST FLOUR
The ROBINSON MILLING COMPANY
SALINA, KANSAS
ACCEPTED AMERICAN MEDICAL ASSN.

WHEAT
Any Grade—Any Quantity—Any Time
BUNGE ELEVATOR CORPORATION
MINNEAPOLIS, MINN.

BLACK BROS. FLOUR MILLS
1863-1944
FLOUR 1,000 BBLS.
STOCK FEED 250 TONS
WYMORE • NEBRASKA

DIXIE LILY
A flour without an equal anywhere
Plain and Self-rising
THE BUHLER MILL & ELEVATOR CO.
BUHLER, KANSAS
Southern Sales Office
933-35 Exchange Bldg., Memphis, Tenn.

"ROCK RIVER" RYE "OLD TIMES" BUCKWHEAT
"BLODGETT'S" RYE
All Grades—From Darkest Dark to the Whitest White
—Specially Milled by the Blodgett Family—Since 1849
FRANK H. BLODGETT, Inc., Janesville, Wisconsin

LIBERTY FLOUR
GEORGE URBAN MILLING CO., Buffalo, N. Y.

STRATTON GRAIN COMPANY
GRAIN AND FEED MERCHANTS
MILWAUKEE, WISCONSIN
CHICAGO, ILL. ST. JOSEPH, MO. NEW YORK, N. Y.

RED WING FLOUR
Milled in Minnesota for Over 40 Years
THE RED WING MILLING CO., Red Wing, Minn.

MINER-HILLARD MILLING CO., Wilkes-Barre, Pa.
Manufacturers of Wheat, Rye, Corn and Buckwheat Flours

GRIST AND GRINS

A three-year-old, sitting in the crowded waiting room of a dental office with his mother, had investigated all the nooks and corners, windows and doors, upset the magazines and made himself the center of attraction. One of the ladies noticing that he was chewing gum, it occurred to her as he walked toward her to ask him for a piece of gum.

He answered: "Nix, I will! You find yourself a piece under the window sill, like I did."

If Little Red Riding Hood lived today
The modern girl would scorn her;
She only had to meet one wolf,
Not one on every corner.
—PHILNEWS.

DAMAGING EVIDENCE

She.—You look very downcast.

He.—Yes, my wife has been away for six weeks, and she's just come home.

She.—And does *that* make you so downcast?

He.—Well, I told her I spent all my evenings at home—and today the light bill came. It's for 50c.

TIME MARCHES ON

"I am Brave Eagle," said the Red Indian chieftain, introducing himself to the paleface visitor. "This is my son, Fighting Bird."

"And here," he added, "is my grandson, Four-Engined Bomber."

NO HELP

Sergeant.—Ugh! There was a worm in that apple!

Corporal.—Here's a glass of water to wash it down!

Sergeant.—Wash it down! Nothin' doin'! Let the bum walk!

I hate the guys
Who criticize
And minimize
The other guys
Whose enterprise
Has made them rise
Above the guys
Who criticize.

Lewis.—I've been working all day on the kind of lipstick that won't come off.

Hi.—Something new you've invented?

Lewis.—No, something new my girl's wearing.

"Next to a beautiful girl, what do you consider the most important thing in the world?"

"When I'm next to a beautiful girl, I don't bother about statistics."

He.—I see dark spots in front of my eyes.

She.—Good, let's park in one of them.

PICK THE FLOUR THAT FITS YOUR NEED!
▲ OCCIDENT
▲ PRODUCER
▲ SUNBURST
▲ SWEET LOAF
▲ KYROL
▲ POWERFUL
THERE'S A RUSSELL-MILLER FLOUR FOR EVERY BAKING PURPOSE
RUSSELL-MILLER MILLING CO.
MINNEAPOLIS, MINNESOTA

"Gooch's Best"
SUPERIOR QUALITY
to Make All Baked Things Better
Gooch Milling & Elevator Co.
Lincoln, Nebraska

FINGER LAKES AND HUDSON FLOUR MILLS, Inc.
Geneva, N. Y.
WHEAT FLOUR *Mills At* RYE FLOUR
GENEVA, N. Y. TROY, N. Y.

"Whitewater Flour"
Ground Where the Best Wheat Is Grown
WHITEWATER FLOUR MILLS CO.
Whitewater, Kansas

THE ROSS MILLING CO.
Choice Quality Flour
Plain and Selfrising
OTTAWA KANSAS

Dependable Hard and Soft Wheat Bakery and Family Flours
SAXONY MILLS
ST. LOUIS, MO.
Our 94th Year

Hart-Bartlett-Sturtevant Grain Co., Inc.
Line country houses in five states
Terminal houses at Kansas City and St. Joseph
Kansas City, Mo.

"Sasnak Flour"
For Discriminating Eastern Buyers
ENNS MILLING CO., Inman, Kan.

REPRESENTATIVE FLOUR IMPORTERS OF FOREIGN COUNTRIES

M. STANNARD E. A. GREEN
Established 1870
STANNARD, COLLINS & CO.
FLOUR, GRAIN AND CEREAL PRODUCT IMPORTERS
Cory Buildings, Fenchurch Street LONDON, E. C. 3

Cable Address: "DORFEACH," London
MARDORF, PEACH & CO., Ltd.
FLOUR IMPORTERS
52, Mark Lane, LONDON, E. C. 3

COVENTRY, SHEPPARD & CO.
FLOUR IMPORTERS
17, Corn Exchange Chambers LONDON, E. C. 3
Cable Address: "COVENTRY," London

J. M. & C. M. HAMM
FORMERLY
WALKERS, WINSER & HAMM
FLOUR AND GRAIN IMPORTERS
Subscription Room
Seething Lane, LONDON, E. C. 3.
Cable Address: "Alkers," London.

A. VAUGHAN THOMAS
FLOUR
Subscription Room, Seething Lane LONDON, E. C. 3

PILLMAN & PHILLIPS
FLOUR IMPORTERS
LONDON, LIVERPOOL, BRISTOL, DUBLIN, BELFAST

HARRIS BROS. & CO. (Grain) Ltd.
COMMISSION AGENTS and FACTORS
GRAIN, SEEDS, OIL, FEEDINGSTUFFS and FLOUR
Corys' Buildings
57/59 St. Mary Axe LONDON, E. C. 3
9 Brunswick Street LIVERPOOL
68 Constitution Street LEITH
81 Hope Street GLASGOW

CRAWFORD & LAW
FLOUR IMPORTERS
50 Wellington Street GLASGOW, C. 2
and at 27, Corn Exchange Chambers LONDON, E. C. 3
Cable Address: "CAMELLIA," Glasgow

W. H. Rutherfurd
D. D. P. Howie John Simpson
W. H. RUTHERFURD & CO.
FLOUR IMPORTERS
70 Robertson Street GLASGOW
C. I. F. Business Much Preferred
Cable Address: "WHEATEAR," Glasgow

ROBERT NEILL, LTD.
FLOUR IMPORTERS
127 St. Vincent Street GLASGOW, C. 2
Branches: Belfast and Dublin

McKINNON & McDONALD, Ltd.
FLOUR, OATMEAL, OILCAKES, CORN PRODUCTS AND GRAIN
75 Bothwell Street, GLASGOW
Cable Address: "GRAINS," Glasgow
60a Constitution Street, Leith
102-103 Grafton Street, Dublin

ROBERT CARSON & CO.
LTD.
FLOUR IMPORTERS
50 Wellington St. GLASGOW
Cable Address: "DIPLOMA," Glasgow

ANDREW TAYLOR & CO.
(GLASGOW) LTD.
FLOUR IMPORTERS
163, Hope Street, GLASGOW
Cable Address: "GOLDENGLO," Glasgow.

WILLIAM MORRISON & SON
LTD.
FLOUR IMPORTERS
Baltic Chambers
50 Wellington Street GLASGOW
Cable Address: "WAVERLEY"

FARQUHAR BROTHERS
FLOUR MERCHANTS
50 Wellington Street GLASGOW, C. 2
C. I. F. business much preferred.
Cable Address: "GLENCAIRN," Glasgow

McCONNELL & REID, LTD.
FLOUR IMPORTERS
19 Waterloo St. GLASGOW
Cable Address: "MARVEL," Glasgow

WATSON & PHILIP, LTD.
FLOUR IMPORTERS
155 Wallace St., GLASGOW, C. 5
41 Constitution St., LEITH
Esplanade Buildings, DUNDEE
42 Regent Quay, ABERDEEN
Cables: "PHILIP," Dundee

D. T. RUSSELL & BAIRD, Ltd.
45 Hope Street GLASGOW
IMPORTERS OF
FLOUR, OATMEALS, CEREALS
OFFICES ALSO AT
LIVERPOOL LEITH
DUBLIN BELFAST

JOHN F. CAMERON & CO.
FLOUR IMPORTERS
No. 8 South College Street, ABERDEEN, SCOTLAND
Also LEITH and DUNDEE
Cable Address: "VIGILANT" Code: Riverside

Low Grades and Millfeed
I. S. JOSEPH CO., INC.
Minneapolis, Minn.

S. R. STRISIK CO.
Flour Mill Agents
Produce Exchange NEW YORK

Broenniman Company
(INCORPORATED)
FLOUR
458 Produce Exchange NEW YORK

J. H. BLAKE
FLOUR
Representing
Highest Class Mills and Buyers
•
Produce Exchange NEW YORK

Low Grades and Second Clears
Your Offers Solicited
The New Century Company
3940 So. Union Avenue CHICAGO, ILL.
Cable Address: "CENTURY"

HUBERT J. HORAN
FOREIGN **FLOUR** DOMESTIC
31st and Chestnut Streets
PHILADELPHIA 4, PA.

J. J. SHEVELOVE
COMMISSION BROKERAGE
Flour and Semolina
Representing Highest Class Mills
24 Commerce Street, Newark, N. J.

Johnson-Herbert & Co.
FLOUR
444 W. Grand Ave. CHICAGO

We are always in the Market for
Hard and Soft Wheat Flours
GENERAL BAKING COMPANY
420 Lexington Ave. NEW YORK CITY

PETER R. NEHEMKIS, Sr.
FLOUR BROKER
7 Shanley Avenue NEWARK, N. J.

KELLY-ERICKSON CO.
Flour Brokers
OMAHA, NEB.
Offices:
New York City and San Francisco

HABEL, ARMBRUSTER & LARSEN CO.
All **FLOUR** Grades
410-420 N. Western Ave.., CHICAGO, ILL.

FLOUR
Broker and Merchandiser
DAVID COLEMAN, Incorporated
Members N. Y. Produce Exchange
Produce Ex. - NEW YORK
New England Office: 211 Bryant St., Malden, Mass.

BREY & SHARPLESS
FLOUR
The Bourse PHILADELPHIA, PA.

We specialize in
designing and engraving
for Millers and the Grain Trade
Holland Engraving Co.
Kansas City, Missouri

We are buyers of **FEEDS** of all kinds
DEUTSCH & SICKERT CO.
730-732 Grain & Stock Exchange
MILWAUKEE, WISCONSIN

KNIGHTON
FOR FLOUR
NEW YORK BOSTON
PHILADELPHIA

Dixie-Portland Flour Co.
Memphis, Tennessee
Standard of the South
plus Dependable Service

The Moundridge Milling Co.
FAMILY FLOUR — BAKERY FLOUR
CRACKER FLOUR
SPECIALTY PRODUCTS
General Offices: MOUNDRIDGE, KANSAS

PEEK BROS.
Flour Brokers
LITTLE ROCK - ARKANSAS

H. S. PEARLSTONE CO.
FLOUR
Produce Exchange
New York City
J. F. Reilly, Mgr.

UNIFORM QUALITY FLOURS
PLAIN AND SELF-RISING
Low cost laboratory controlled mill grinding all types of wheat
Pancake Flour—Cake Flour—Farina—Whole Wheat Products—Prepared Biscuit Flour
CHELSEA MILLING CO., Chelsea, Mich.

Serving the Metropolitan Buyers for Over 40 Years With the
HIGHEST QUALITY FLOURS PRODUCED
NEW JERSEY FLOUR MILLS CO.
CLIFTON, N. J.
Renown for Our Prompt and Efficient Service
Only 11 Miles from New York City

SEVEN
Great Bread Makers
From Selected Spring Wheat

DULUTH UNIVERSAL
PRIDE OF DULUTH
DULUTH RELIABLE
PURE GOLD
FARM GOLD
APEX—Fancy Clear
RED INDIAN—First Clear

Try our high protein spring wheat Graham and Whole Wheat flours, Farina and Pure Wheat Germ.

Duluth Universal Milling Co.
DULUTH, MINN.

"Sweet Cream"
"Very Best"
Quality Flours
W. J. JENNISON CO.
MINNEAPOLIS, MINN.

Pfeffer Milling Company
Manufacturers of Pure High-Grade Winter Wheat Flour
Brands: Lebanon Bell, LEBANON, Flake White, Fluffy Ruffles ILL.
Member Millers' National Federation
Capacity: 1,000 bbls

Gallatin Valley Milling Co.
MONTANA
Flours and Grain
D. R. FISHER, Mgr. BELGRADE, MONT.

"Golden Loaf" That's Our Brand—
The Flour with the Doubt and Trouble left out
TENNANT & HOYT COMPANY
Lake City, Minn.

The Wamego Milling Co.
WAMEGO, KANSAS
Millers of Kansas Hard Wheat Flour
HIGH CLASS BROKERAGE CONNECTIONS DESIRED

Garland Milling Co.
Pure Soft Winter Wheat Flour
GREENSBURG, IND.

Western King Flour
Uniform Bakery Flour
MANEY MILLING CO.
Omaha, Neb.

• INDEX OF ADVERTISERS •

"A" series of page numbers used to index advertisements appearing in Section Two of this issue.

A
Abilene Flour Mills Co. 29
Acme-Evans Co. 33
Acme Flour Mills Co. 29
Akron Belting Co.
Allen, James, & Co. (Belfast), Ltd.
Alva Roller Mills
Amber Milling Co. 32
Amendt Milling Co.
American Bakers Machinery Co.
American Cyanamid & Chemical Corp. 21a
American Dry Milk Institute, Inc.
American Flours, Inc. 29
American Machine & Foundry Co. 6
Ames Harris Neville Co.
Anheuser-Busch, Inc.
Appraisal Service Co., Inc. 20a
Archer-Daniels-Midland Co. 27
Arkansas City Flour Mills Co. 31
Arnold Milling Co. 29
Atkinson Milling Co. 29

B
Barnett & Record Co.
Baxter, A. E., Engineering Co. 26a
Bay State Milling Co. 25
Belan, Mathew C.
Bemis Bro. Bag Co. 27a
Big Jo Flour Mills 27
Black Bros. Flour Mills 38
Blair Milling Co. 33
Blake, J. H. 39
Blodgett, Frank H., Inc. 38
Borden Co.
Bowersock Mills & Power Co. 33
Bowsher, N. P., Co. 20a
Brey & Sharpless 39
Broenniman Co., Inc. 39
Brownold, M. S., Co.
Brown's Hungarian Corp.
Bryo Co.
Buhler Mill & Elevator Co. 38
Bunge Elevator Corp. 38

C
Cameron, John F., & Co. 39
Canadian Bag Co., Ltd. 36
Canadian-Bemis Bag Co., Ltd. 37
Canadian Mill & Elevator Co.
Cannon Valley Milling Co. 32
Capital Flour Mills, Inc. 7
Cargill, Inc. 27
Carson, Robert, & Co., Ltd. 39
Centennial Flouring Mills Co. 6
Central Bag & Burlap Co. 25a
Central Soya Co., Inc.
Chandler, Arthur L., & Co. 31
Chase Bag Co. 3
Chatfield & Woods Sack Co.
Checkerboard Elevator Co. 12a
Chelsea Milling Co. 39
Chicago, So. Shore & So. Bend R. R.
Chickasha Milling Co. 32
Chubb & Son 7
Church & Dwight Co., Inc.
Coatsworth & Cooper, Ltd. 37
Colborne Mfg. Co.
Coleman, David, Inc. 39
Collins Flour Mills, Inc. 6
Colorado Milling & Elevator Co. 8
Columbus Laboratories
Commander-Larabee Milling Co. 17
Consolidated Flour Mills Co. 4
Continental Grain Co. 25
Corn Products Sales Co.
Coventry, Sheppard & Co. 39
Crawford & Law 39
Cream of Wheat Corp.
Crete Mills, The 31
Crookston Milling Co. 7
Crown Mills 6

D
Dairymen's League Co-operative Association, Inc.
Davis-Noland-Merrill Grain Co. 2
Day Co. 18a
De Lisser, Andrew
De Stefano, Ulysses
Denver Alfalfa Milling & Products Co. 33
Deutsch & Sickert Co. 39
Diamond Crystal Salt Co., Inc. 13a
Dixie-Portland Flour Co. 39
Dobry Flour Mills, Inc. 32
Dominion Flour Mills, Ltd. 34
Doughnut Corporation of America
Dow Chemical Co. 23a
Duluth Universal Milling Co. 40
Duncan, Wm. C., & Co., Inc.
Dunwoody Institute
Dutchess Tool Co., Inc.

E
Eagle Roller Mill Co. 6
Eberhardt & Simpson Grain Co. 32
Eckhart, B. A., Milling Co. 25a
Enns Milling Co. 38
Entoleter Division, Safety Car Heating & Lighting Co., Inc. 12a
Essmueller Co. 18a
Evans Milling Co. 7

F
Falk Products Co.
Farmers & Merchants Milling Co. 32
Farquhar Bros. 39
Feast, C. E., & Co.
Federal Mill, Inc. 38
Fennell, Spence & Co.
Ferbo Co.
Finger Lakes & Hudson Flour Mills, Inc. 38
Fisher-Fallgatter Milling Co. 33
Fisher Flouring Mills Co. 6
Flour Mills of America, Inc. 5
Food Research Laboratories, Inc.
Fort Garry Flour Mills Co., Ltd.
Fort Morgan Mills
Franco, Francis M.
Fulton Bag & Cotton Mills 20a

G
Gallatin Valley Milling Co. 40
Garland Milling Co. 40
General Baking Co. 39
General Mill Equipment Co. 14a
General Mills, Inc. Cover 4
Gillespie Bros., Ltd.
Globe Milling Co. 7
Geoch Milling & Elevator Co. 38
Goodlander Mills Co., Fort Scott, Kan.
Great Star Flour Mills, Ltd. 36
Greenbank, H. J., & Co.

H
Haaky Mfg. Co. 25a
Habel, Armbruster & Larsen Co. 39
Hamm, J. M. & C. M. 39
Hammond Bag & Paper Co.
Hardesty Milling Co. 37
Harris Bros. & Co., Ltd. 39
Hart-Bartlett-Sturtevant Grain Co., Inc. 38
Hart-Carter Co. 28a
Heide, Henry, Inc.
Henkel Flour Mills 32
Hoffmann-La Roche, Inc. 10a
Holland Engraving Co. 39
Hookway, F. E., & Co., Ltd.
Horan, Hubert J. 39
Hosmer, Calvin, Stolte Co.
Howie, The J. K., Co. 26a
Hubbard Milling Co. 33
Hunter Milling Co. 29

I
Igleheart Bros., Inc.
Imbs, J. F., Milling Co. 6
Innis, Speiden & Co. 19a
International Milling Co. Cover 2
Ismert-Hincke Milling Co. 37

J
Jaeger, Frank, Milling Co.
Jennison, W. J., Co. 40
Jewell, L. R., & Son
Johnson-Herbert & Co. 39
Jones-Hettelsater Construction Co. 20a
Joseph, I. S., Co., Inc. 39
Junction City Milling Co.

K
Kalamazoo Vegetable Parchment Co.
Kansas Flour Mills Co. 5
Kansas Milling Co. 19a
Kelly-Erickson Co. 39
Kelly Flour Co.
Kelly, William, Milling Co. 29
Kent, Percy, Bag Co., Inc. 2a
Kimpton, W. S., & Sons.
King, H. H., Flour Mills Co. 25
King Midas Flour Mills 33
King Milling Co. 32
Kipp-Kelly, Ltd. 37
Knighton, Samuel, & Sons, Inc. 39
Koerner, John E., & Co.

L
La Grange Mills 25
Lake of the Woods Milling Co., Ltd. 34
Lakeside Milling Co., Ltd. 36
Lee, H. D., Flour Mills Co. 33
Lever Bros. Co.
Lexington Mill & Elevator Co.
Long, W. E., Co. 31
Lynch, Merrill, Pierce, Fenner & Beane
Lyon & Greenleaf Co., Inc. 33
Lysle, J. C., Milling Co. 33

M
McConnell & Reid, Ltd. 39
McKinnon & McDonald, Ltd. 30
Maney Milling Co. 40
Maple Leaf Milling Co., Ltd. 34
Mardorf, Peach & Co., Ltd. 39
Marsh & McLennan, Inc.
Mennel Milling Co.
Merck & Co., Inc. 17a
Merrill, Harold A. 29
Mid-Kansas Milling Co.
Midland Flour Milling Co. 37
Mid-West Laboratories Co., Inc. 12a
Mill Mutual Fire Prevention Bureau. 19a
Miner-Hilliard Milling Co. 38
Minot Flour Mill Co.
Monsanto Chemical Co. 7a
Montana Flour Mills Co. 33
Moore-Lowry Flour Mills Co. 32
Moore-Seaver Grain Co. 29
Morris, Cliff H., & Co.
Morrison Milling Co. 33
Morrison, Wm., & Son, Ltd. 39
Moundridge Milling Co. 39
Myers, J. Ross, & Son.

N
National Cotton Council of America
National Grain Yeast Corp.
Neahr, M. J., & Co. 26a
Nebraska Consolidated Mills Co. 33
Nehemkis, Peter R., Sr. 39
Neill, Robert, Ltd. 39
New Century Co. 39
New Era Milling Co. 7
New Jersey Flour Mills Co. 39
Newton Milling & Elevator Co.
Noblesville Milling Co.
Norris Grain Co. 2
North Dakota Mill & Elevator.
Norton, Willis, Co. 25
Nor-Vell Sieve Co. 12a
Novadel-Agene Corp. Cover 3

O
Ogilvie Flour Mills Co., Ltd. 36
Omega Machine Co. 26a

P
Page, Thomas, Mill Co. 33
Panipius Company
Parrish & Heimbecker, Ltd.
Patterson & Beckenbach
Pearlstone, H. S., Co. 39
Peek Bros. 39
Pfeffer Milling Co. 40
Pfizer, Chas., & Co., Inc. 24a
Pillman & Phillips 39
Pillsbury Flour Mills Co. 1
Pittsburgh Plate Glass Co., Columbia Chemical Division 8a
Pratt, R. C. 37
Preston-Shaffer Milling Co. 6
Prina, Frank R., Corp.
Procter & Gamble

Q
Quaker Oats Company

R
Red River Milling Co.
Red Star Yeast & Products Co.
Red Wing Milling Co. 38
Richardson, James, & Sons, Ltd. 36
Richmond Mfg. Co. 26a
Riegel Paper Corp.
Robin Hood Flour Mills, Ltd. 36
Robinson Milling Co. 38
Robinson, Thomas, & Son, Ltd. 13a
Rodney Milling Co. 31
Rogers Bros. Seed Co.
Ross Milling Co. 38
Russell, D. T., & Baird, Ltd. 39
Russell-Miller Milling Co. 38
Russell Milling Co. 31
Rutherfurd, W. H., & Co. 39

S
St. Cloud Milling Co. 33
St. Joseph Testing Laboratories, Inc. 24a
St. Lawrence Flour Mills Co., Ltd. 35
St. Regis Paper Co.
Saxony Mills 38
Schneider, W. H., Co.
Schultz, Baujan & Co. 31
Scott, Mungo, Ltd.
Seedburo Equipment Co. 19a
Service Bag & Burlap Co. 13a
Shellabarger Mills 32
Sheridan Flouring Mills, Inc. 33
Shevelove, J. J. 39
Short, J. R., Milling Co.
Siebel Institute of Technology
Simonds-Shields-Theis Grain Co. 2
Smith, Sidney, Flour, Feed & Grain, Ltd.
Spillers, Ltd. 37
Spindler, L. G.
Spokane Flour Mills Co. 6
Springfield Milling Corp. 33
Staley Milling Co.
Stanard-Tilton Division (Russell-Miller Milling Co.)
Standard Brands, Inc.
Standard Milling Co. 32
Stannard, Collins & Co. 39
Stock, F. W., & Sons, Inc.
Stonhard Co. 18a
Stratton Grain Co. 38
Strisik, S. R., Co. 39
Sullivan & Kennedy 37
Swift & Co.

T
Tanner-Evans-Siney Corp.
Taylor, Andrew, & Co., Ltd. 39
Tennant & Hoyt Co. 40
Tension Envelope Corp.
Textile Bag Manufacturers Association. 16a
Thomas, A. Vaughan 39
Thompson, E. S.
Tidewater Grain Co.
Tobler, Ernst & Traber, Inc. 11a
Toronto Elevators, Ltd. 37
Tri-State Milling Co.
Twin City Machine Co. 18a

U
Uhlmann Grain Co. 7
Union Steel Products Co.
United Grain Growers, Ltd. 37
Urban, George, Milling Co. 38

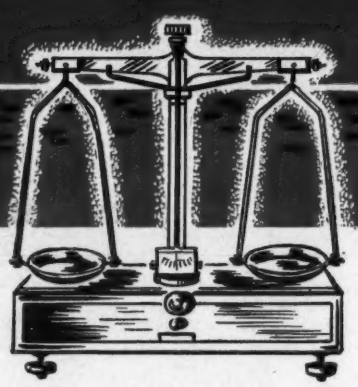
V
Valier & Spies Milling Co.
Van Dusen Harrington Co. 25
Victor Chemical Works 15a
Virginia-Carolina Chemical Corp.
Voigt Milling Co. 32

W
Wall-Rogalsky Milling Co. 29
Wallace & Tiernan Co., Inc. Cover 3
Walnut Creek Milling Co. 31
Wamego Milling Co. 40
Watson & Philip, Ltd. 39
Watson Higgins Milling Co.
Weber Flour Mills Co. 25
Weevil-Cide Co., The 26a
Wesson Oil & Snowdrift Sales Co.
Western Assurance Co. 37
W. A. Cooperative Flour & Grain Export Agency
Western Canada Flour Mills Co., Ltd. 35
Western Milling Co. 6
Western Star Mill Co.
White & Co. 38
Whitewater Flour Mills Co. 27
Wichita Flour Mills Co. 33
Williams Bros. Co. 22a
Winthrop Chemical Co., Inc. 33
Wisconsin Milling Co. 33
Wolf Milling Co. 35
Woods Mfg. Co., Ltd.

There is a Type of

N-RICHMENT-A

Scientifically Matched to Your Requirements



To enable a miller to make efficient use of an enrichment concentrate whatever may be the nutrient needs of his flour, N-Richment-A is now furnished in several types.

Thus the miller can avail himself of all the conveniences of a prepared concentrate to bring his flour most effectively to any required standard.

Developed by Novadel-Agene research laboratories under exacting tests, and produced under the same scientific controls as Agene and Novadelox, N-Richment-A meets the most critical demands for accuracy of formula, uniformity, stability and free-flowing qualities.

In purchasing N-Richment-A, no applications for allocation are needed, and deliveries of required quantities can be made promptly from conveniently located distribution points, making it unnecessary to carry large inventories of concentrate.

Technical information on the different types will be furnished on request.

AGENE NOVADELOX N-RICHMENT-A

WALLACE & TIERNAN CO., INC., AGENTS FOR

NOVADEL-AGENE

BELLEVILLE 9, NEW JERSEY

Dawn patrol

Spend a day with Joe and you'll discover what makes him tick. A morning chore for Dad, an errand for Mom, then play...lots of it.

Joe thinks this is a great place. He goes to a public school, a free church. He likes the youngsters next door, the double-dip cones at the corner store, the sizzling hamburgers at the county Fair.

He likes the way his Dad can hold up his head and speak his mind. And when Joe looks to the horizon he sees new things to come, new progress for tomorrow.

These are the things worth fighting for, worth keeping for him.

We, the 8200 men and women of General Mills, have a stake in the Joes of America... a responsibility to see that the food he gets is as good as the science of nutrition can make it. To this end we devote our resources, our energies and the skill of our laboratories.

GENERAL MILLS, INC.